INTEGRATED WATERSHED MANAGEMENT PROGRAMME

IWMP-II/2010-11

AREEKODE BLOCK PANCHAYAT

MALAPPURAM DISTRICT

PART 1

CHAPTER 1

PROJECT BACKGROUND

1 INTRODUCTION

Watershed management, this is the process of guiding & organising, land and other resource usage in a watershed ensuring the sustenance of the environment (mainly the soil and water resources) ie. Need to recognise the interrelationships between, land use, soil-water, and slope of terrain. Unifying focus in watershed management is in how various human activities affect the relationship between water and other natural resources .Watershed programme will be sustainable only if it continues to operate after withdrawal of monetary or technical supports. In Integrated Watershed Management Programme the participation of local community is assured since the different works on private as well importance of "participation" for sustainability in watershed management programmes.Collective participation of people is very important due to inter dependence of beneficiaries. Transfer of responsibility within their community is a key mandatory for ensuring the sustainability.

2 **PROJECT AREA**

Areacode A1 project includes the 10 micro watersheds that come in Areakode and Kondotty Blocks Panchayath, Malappuram district of Kerala. Among these watersheds Meleparambu, Arimbrakuth, Areacode, Ugrapuram, Vallayil-Chembrakattur and Asharithodu are within the boundaries of Areacode Block Panchayath. Poomkudipadam, Chaliyar and Chaliyapram watersheds are within the limits of Kondotty Blck Panchayath.

Table.No.1.1: Cluster of 10 watersheds in Areacode Block Panchayath

NAME OF WATERSHED	CODE	Grama Panchayath	Block	TOTAL AREA	TREATABLE AREA
MELAPARAMBU VALIYATHODU	24C10a	Keezhuparamba	Areacode Kondotty	**701**	**600**
ARIMPRAKUTHU	24C12a	Keezhuparamba		**265**	**265**
AREACODE	24C64a	Areacode		**539**	**495**
UGRAPURAM	24C65a	Areacode		**327**	**327**

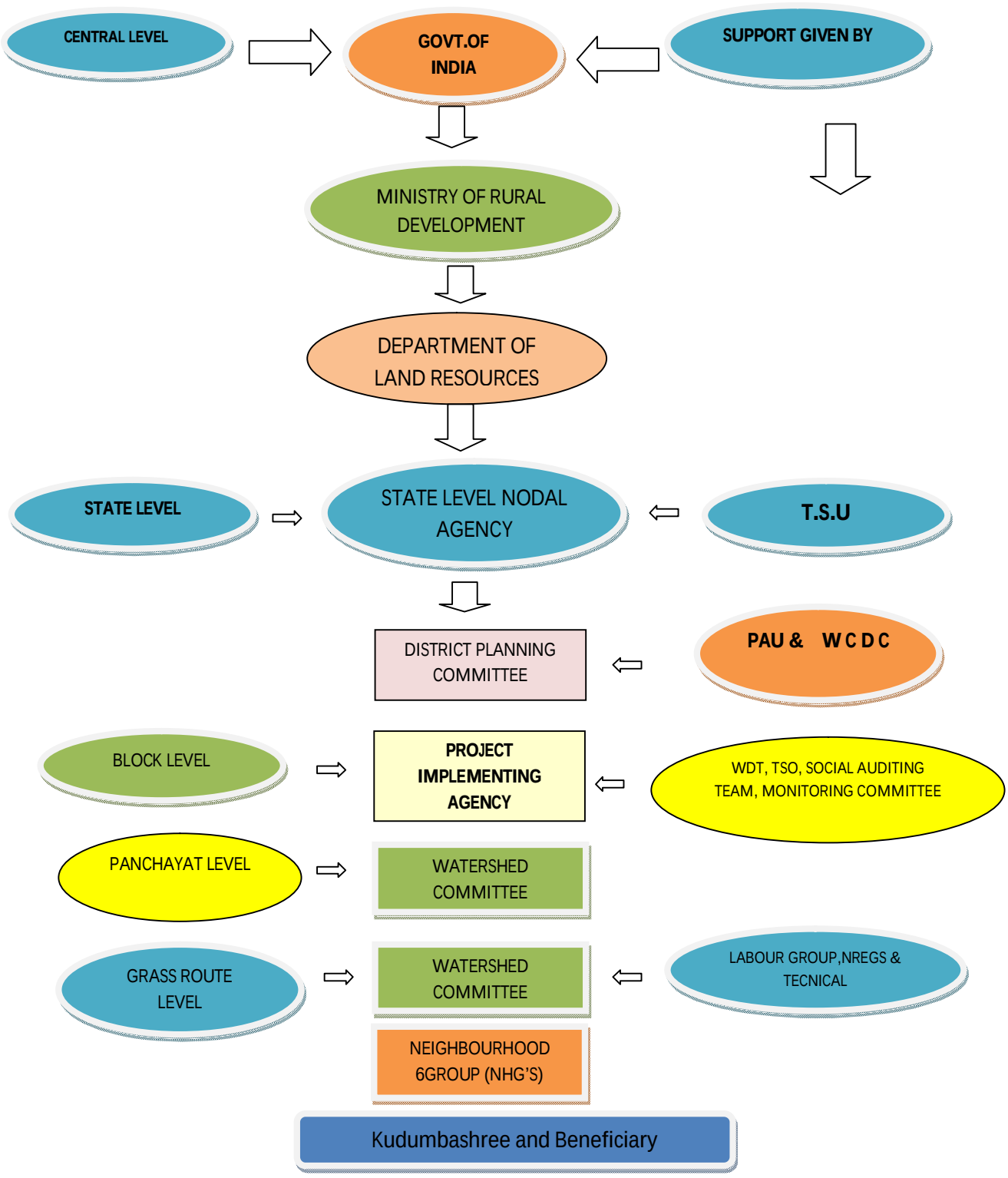
VALLAYIL CHEMRAKATTUR	24C66a	Areacode		**840**	**840**
ASARITHODU	24C66b	Kavanur		**977**	**976**
VILAYIL	24C66q	Cheekkode		**939**	**873**
POONKUDIPADAM	24C66r	Chekkode		**202**	**195**
CHALIYAR	24C67a	Cheekkode		**300**	**300**
CHALIYAPURAM	24C68a	Keezhuparamba		**392**	**392**

Source: As per PPR

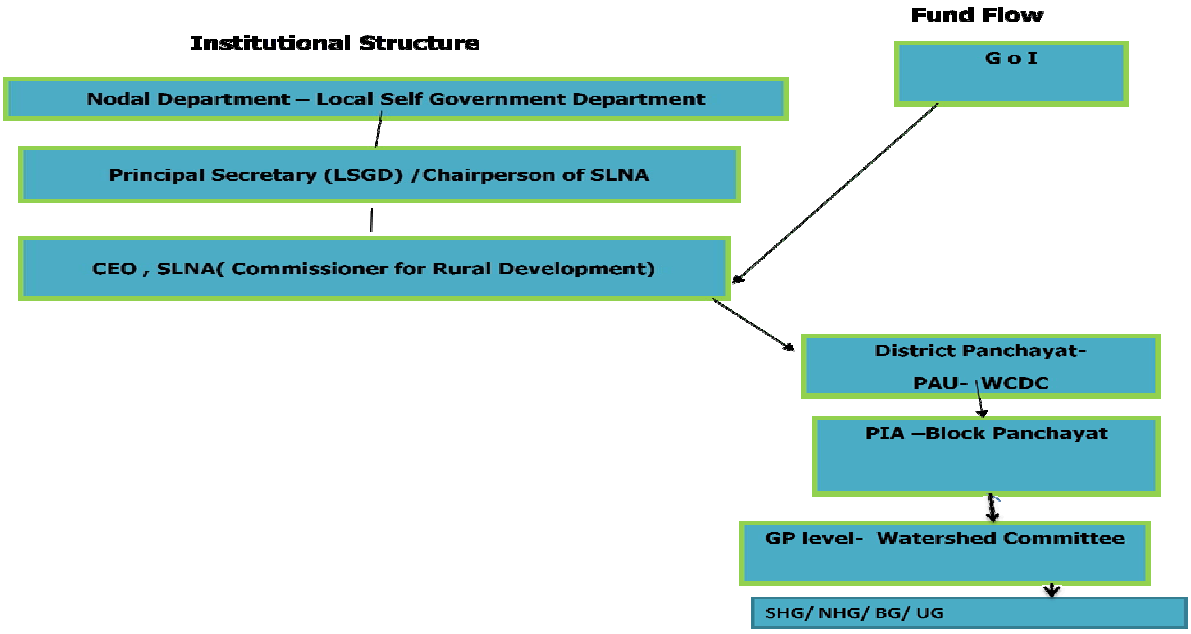
3. MAIN OBJECTIVES

- Main objective of IWMP is to preserve and conserve the ecology, restore and develop degraded natural resources by arresting soil loss, improving soil health and soil moisture.
- Rain water harvesting and recharging of ground water table enables multi cropping and introduction of diverse agro based activities which help to provide sustainable livelihood to the people residing in watershed area.
- To promote livestock development, fishery management, and to encourage dairying and marketing of dairy products.
- Improving the capacity of community to manage common natural resource.
- Enhancing the efficiency and effectiveness of rain water and runoff use, improve vegetative cover and reduce soil erosion through better rain water management.
- Conserving as much rain water as possible in the place where it falls and also increasing the ground water level to get water throughout the year and maintaining it for sustainability.
- Utilizing the available land to its maximum productivity by adopting various or suitable measures according to the land capability and without any environmental degradation.

5. ORGANIZATIONAL SET UP



6. FUND FLOW



7. FUNDING PATTERN

Sl. No.	Particulars	Percentage of Fund	Amount
01.	Administration Cost	10.00	78,94,500
02.	Monitoring	1.00	7,89,450
03.	Evaluation	1.00	7,89,450
04.	Entry Point Activities	4.00	31,57,800
05.	Institution & Capacity Building	5.00	39,47,250
06.	DPR	1.00	7,89,450
07.	Watershed Development Works	56.00	4,42,09,200
08.	Livelihood Activities	9.00	71,05,050
09.	Production System & Micro Enterprises	10.00	78,94,500
10.	Consolidation Phase	3.00	23,68,350
Total		**100**	**7,89,45,000**

Source: As per PPR

CHAPTER 2

BASIC INFORMATION OF THE PROJECT AREA

1 GENERAL DESCRIPTION OF THE PROJECT AREA

Areacode Block Panchayath is located in the Northern part of the Malappuram district of Kerala state. It includes seven Grama Panchayats which are Urngattiri, Kavanur, Kizhuparamba, Pulpatta, Cheekode, Areacode and Kuzhimanna.

2. LOCATION AND EXTENT

Areacode A1 Project area is situated in the Northern part of the Areacode Block. The Cluster area is situated between 11^0 11'6" and 11^0 16' 8"North latitude and between75^0 58'0" and 76^0 6'0" East longitude. The total extent of the cluster is 52.63 sqkm. The cluster area is bounded on the north Kodiyathur Panchayath of Kozhikode, east by Urangattiri Grama Panchayath, and south by Kuzhimannna Grama Panchayath west by the Pulpatta Grama Panchayath.

3. PHYSIOGRAPHY

The Areacode Cluster area coming under the Midlands, lying between the mountains and the lowlands is made up of undulating hills and valleys. This is an area of intensive cultivation. Cashew, coconut, Arecanut, tapioca, banana and vegetables of different varieties are grown in this area. The total area of the Areacode cluster is 5482 hectares and the treatable area is 5263 hectares. The highest elevated point is located in the southern part of the cluster which is 218 meters from MSL and the lowest point in the side of Chaliyar. Majority of the area (2229 ha, 42.35% of land) comes under moderately sloping class of 5-10%. This is major slope class is all micro watersheds except Meleparambu, Arimbrakuth and Areacode. The second major category is moderately steep to steep class with 15-33 % slope. This occurs is 3211 ha (61 %). An area of 692 ha (13% of land is having slope more than 35 %, which requires proper management and conservation measures.

Table.No.1: Slope of Entire Project area

SLOPE	Area In Ha	At %	% of steep
Moderately sloping	2229	42.35	5-10
Strongly sloping	1369	26.01	10-15
Moderately steep to steep	630	11.9	15-33

Very steep sloping	945	17.9	33-50
Very Very steep	90	1.71	>50
Total	5263	100	

Chaliyar river originates from Elembileri hills of Waynad taluk which is major drain in the cluster area and its important tributaries is Cherupuzha, The main river passes through Areacode, Urganttiri and Kizhuparamba of Malappuram District before it joins with the sea at Beypore. This river has a total length of about 168kms out of this about 12 km length passes through this cluster area.

4 CLIMATE AND RAINFALL

The below table summarises the rainfall data of cluster area which is 10 years. If we compare year wise, the highest rain fall received in 2007 and the lowest rainfall received in 2012.

Table No.2.2: Rainfall of Cluster area (Areacode A1)

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
January	13.10	0.00	0.00	7.40	0.00	0.00	0.00	0.00	4.20	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	34.40	0.00	0.00	11.80	0.00
March	0.00	10.20	0.00	0.00	68.60	0.00	175.00	48.00	11.60	2.40	0.00
April	58.00	105.80	119.90	115.20	8.80	25.80	30.80	80.00	58.80	122.00	115.20
May	249.20	119.60	408.40	25.60	453.70	167.00	108.80	103.40	69.60	51.60	8.80
June	413.10	534.40	634.00	698.40	689.80	615.10	641.10	332.30	466.00	809.00	269.20
July	296.40	547.40	281.60	605.90	620.80	1319.00	279.70	965.60	483.40	457.40	331.17
August	423.00	614.60	374.40	213.20	390.80	455.20	177.80	219.60	237.40	410.60	343.20
September	57.80	63.40	140.00	299.80	700.60	498.40	293.80	240.30	182.10	371.60	144.10
October	439.20	281.20	264.40	334.80	251.80	305.60	421.70	290.40	425.20	157.80	107.60
November	141.20	65.00	71.00	155.40	142.00	78.00	13.20	227.40	232.20	137.80	232.20
December	*	0.00	0.00	7.80	0.00	0.00	0.00	2.80	46.80	0.00	46.80
Total (Rain fall in mm)	**2091.00**	**2341.60**	**2293.60**	**2463.50**	**3326.90**	**3464.10**	**2176.30**	**2509.80**	**2217.30**	**2532.00**	**1598.27**

Rainfall min Rainfall Max

Source: Cashew Research Station Anakkayam, Malappuram

4.1 TEMPERATURE

The climate is generally hot and humid. March and April months are the hottest and January and February months are the coldest. The temperature starts rising from January and reaches the peak in the month of March and April and then decreases during the monsoon months and again rising from September onwards. The average maximum, minimum and mean temperatures of the watershed are 33.5°C, 18.5°C and 27°C respectively.

Table No.2.3: Monthly wise Temperature in Maximum and Minimum

	2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012	
Month	Temperature		Temperature		Temperature		Temperature		Temperature		Temperature		Temperature		Temperature		Temperature		Temperature		Temperature	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
January	33.20	28.50	32.70	*	34.10	18.90	34.40	20.20	34.30	20.60	34.30	18.70	36.00	17.40	34.60	17.79	34.12	18.27	33.97	16.58	33.90	15.70
February	31.20	26.70	34.50	*	35.80	21.20	36.40	21.90	35.90	20.90	35.70	26.90	36.70	21.10	36.17	19.35	32.30	17.16	35.00	16.53	35.17	17.82
March	33.80	27.90	34.90	*	37.70	23.60	32.30	23.70	35.30	22.80	37.50	23.30	35.40	21.10	35.17	20.85	37.12	21.37	36.19	19.37	36.33	20.09
April	33.70	28.80	33.50	*	35.10	22.00	36.10	24.00	36.30	24.80	37.60	23.80	35.90	22.40	35.80	22.29	35.63	20.82	35.16	19.11	36.23	20.28
May	32.30	28.80	35.00	*	31.90	22.60	36.60	24.50	34.80	30.70	35.80	23.60	35.10	22.10	35.60	21.50	34.13	20.82	33.91	20.58	33.00	23.33
June	25.10	22.50	29.30	*	33.80	22.40	31.10	21.90	33.20	22.70	31.00	22.50	31.90	21.40	31.40	20.80	30.58	19.74	28.80	18.65	31.50	19.30
July	29.50	26.50	27.60	*	30.50	21.70	29.20	22.60	30.20	22.00	29.10	21.50	31.70	18.60	30.30	20.24	30.06	19.26	27.43	18.51	30.67	18.67
August	28.70	25.40	28.70	*	31.10	21.70	33.00	22.40	31.20	22.00	30.80	21.60	31.60	21.10	31.50	20.50	30.06	19.48	26.88	18.85	30.41	18.82
September	31.10	28.30	21.09	*	32.40	22.40	21.00	22.60	30.60	22.00	30.60	21.60	31.80	20.40	31.30	21.20	29.82	19.04	27.15	18.45	31.87	18.53
October	30.30	28.60	29.70	*	32.40	22.30	31.10	22.30	32.10	22.00	32.10	21.80	32.70	20.80	32.90	20.43	30.24	19.03	28.25	19.17	33.32	18.73
November	30.50	27.50	31.10	*	33.10	21.80	31.50	22.50	32.40	22.00	33.70	19.60	33.70	20.20	32.30	20.50	30.34	18.26	27.18	17.78	27.15	19.37
December	*	*	27.10	*	33.30	18.40	32.90	21.00	33.30	19.00	34.10	19.50	34.20	18.60	33.50	19.03	32.00	17.81	30.93	15.27	28.25	19.11
Total	339.40	299.50	365.19		401.20	259.00	385.60	269.60	399.6	271.5	402.3	264.40	406.70	245.20	400.54	244.48	386.40	231.06	370.85	218.84	387.80	229.75

Temp Max Temp Min

Source: Cashew Research Station Anakkayam, Malappuram

4.2 HUMIDITY

The humidity is more during south –west monsoon i.e, during June to September. The relative humidity ranges from 84 to 94% during morning hours.

4.3 WIND

The wind is predominant from east as well as west during morning and evening hours. The wind speed is more during December to February months.

5 GEOLOGY AND GEOMORPHOLOGY

Physiographically the district can be divided broadly into three types viz: coastal plains (less than 7.5 m), Midland (7.5-75 m) and highlands (above 75 m) as per the state P W D classification. The Salient features of the unit are briefly described below. Most of the places are underlain by Laterites and crystalline rocks of Archaean Age. Laterite derived from crystalline rocks and Tertiary sediments also found in the cluster area. Areacode A1 area contains mid land region characterized by flat topped hillocks with steep 'U' shaped valleys and ridges. The valley form potential area for agriculture including paddy, arecanut, vegetables, banana and coconut. The hill tops are generally barren and are covered by thick and compact laterite.

6 GROUND WATER

The costal alluvium is essentially composed of sand, silt and clay. The Ground Water occurs under water table conditions. Large number of dug wells and filter point wells tap this aquifer to meet the domestic and agricultural needs. Depth of dug wells varies 3 to 8 meters. Recharge to Ground Water takes place immediately on the beginning of Monsoon. Monsoon starts almost during the end of May and by the starting of June. June to September is the recharging period corresponding to rainfall received in the area. From December onwards water level depletion starts and it reaches peak during the end of May. The above given map showing Ground water condition in the Project area(Areacode A1).Most of the area is containing moderate in ground water condition as well as very good to good found in the valley of cluster area. A poor water condition is found in the north and sound of the cluster area. The laterite which occupies the midland region constitutes the potential aquifer because of the porous and highly permeable nature. Ground Water occurs under water table conditions. The depth of dug wells varies from 8to 12m bgl. The bottom part the wells are mainly of lithomargic clay and becomes low yielding during peak summer periods.

Table No.6.1 Ground water details

GROUND WATER DETAILS OFAREACODE 1 FROM 2011-2012												
MID LAND	DUG WELL: G.Panchayath											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	12.14	12.04	12.35	12.76	12.19	7.39	9.56	9.02	9.7	10.59	10.68	11.55
2012	12.21	12.98	12.3	12.14	11.9	10.12	9.52	9.81	8.35	10.54	10.48	10.87
LOW LAND	BORE WELL: GWD											
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	7.38	7.68	8.23	8.84	8.22	4.36	5.2	4.82	4.76	6.57	6.31	7.7
2012	8.23	8.46	8.77	8.45	7.9	7.08	5.37	4.74	3.5	6.46	6.05	7.03
UP LAND	BORE WELL: GWD					Source:GWD Malappuram						
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	38.54	38.38	39.13	39.76	40.63	40.77	38.38	36.18	35.19	35.91	36.24	38.37
2012	39.43	40.31	40.95	42.01	42.15	43.43	41.09	39.26	37.49	37.52	37.78	38.21

6.2 EXISTING AREA UNDER IRRIGATION

Source of irrigation	Area irrigated (Ha)
Well	12
Tank	25
Pond	100
Canal	399
Others	800
Total	2914

7. SOILS

Areacode A1 Watershed Project falls under KE-2 Southern Agro Climatic Zone. The soil is mainly Red loamy, mixed red and black. The soil is Alluvial to very whites gray in surface colour. The depth of soil is too deep about 35 to75 cm. The predominant texture of soil is Red loamy and mixed red and Black. The major crops under cultivation in these areas are Rice, Tapioca, Coconut, Arecanut, Pepper, Banana, and Cashew nut, Rubber, Jackfruit, Mango tree Ginger, Turmeric and Vegetables etc. The soil type, area and at percentage is given in below table.

Types of Soils	Area In Ha	Area At %
Brown hydro orphic	1188	22.8
Silty Clay	1169	22.5
Laterite	2592	49.8
Forest Soils	254	4.9
Total	5203	100

8 AGRICULTURE AND PRESENT LAND USE

Table.No.2.4: Agriculture land use of Cluster area

Items	Area in ha
Paddy cultivated	20
Paddy field converted to annuals	5
Paddy field converted to perennials	18
Paddy field converted to construction purposes	5
Paddy field left fallow	107
Coconut dominated mixed crop	500
Mixed crop	2458
Plantations	200
Rubber- stage of crop	250
Total cultivated area	390
Cultivable waste	200
Fallow land	859

Source: Kerala State Land Use Board

8.1 CROPS AND PRODUCTION

SL.NO	CROP Pattern	AREA in Hectares	PRODUCTION in Tonnes
1.	COCONUT	3269	24148
2.	AREACANUT	1219	1690
3.	BANANA	125	13500
4.	PADDY	20	1872
5.	VEGETABLES	109	325
6.	PEPPER	29	17.75
7.	CASHEW NUT	129	37400
8.	TUBERS	128	4830
9.	GINGER&TURMERIC	29.4	348
10.	RUBBER	251	

Source: Department Of Agriculture, Kerala

9 DETAILS OF WASTE LAND

SL.NO	WATERSHED	EXTENT OF WASTE LAND	
		CULTIVABLE	UNCULTIVABLE
1	MELAPARAMBU VALIYATHODU	**6**	**16**
2	ARIMPRAKUTHU	**0**	**1**
3	AREACODE	**0**	**25**
4	UGRAPURAM	**0**	**31**
5	VALLAYIL CHEMRAKATTUR	**0**	**8**
6	ASARITHODU	**0**	**7**
7	VILAYIL	**0**	**14**
8	POONKUDIPADAM	**0**	**7**
9	CHALIYAR	**0**	**29**
10	CHALIYAPURAM	**0**	**66**

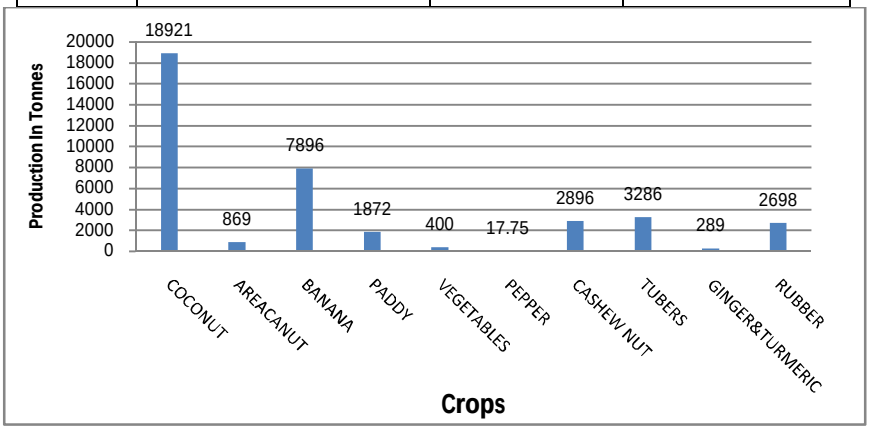


Figure No.2.1: Agriculture Crops Production

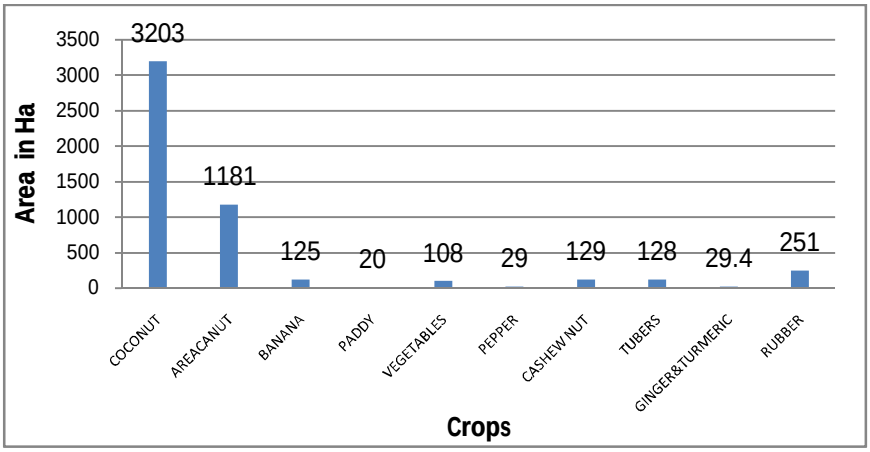


Figure No.2.2: Agriculture area of Areacode A1

The above showing table and figure summarising the agriculture area, Crops and Production of the cluster area of Areacode Block Panchayath.

- Production and area of Coconut is very high in the cluster area.
- Cashew nut production is very high which above 128 thousand tonne.
- Pepper is lowest production in the cluster area.
- Banana Production is also very high in the cluster area.

10 DRINKING WATERSUPPLY AND IRRIGATION

Table. No.2.5: Source of Drinking water and Availability o in Months

Sl no	Watershed Area	Ground water table (mt)	Source of drinking water	Availability in months
1	MELAPARAMBU VALIYATHODU	5-10	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
2	ARIMPRAKUTHU	5-15	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
3	AREACODE	3-8	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
4	UGRAPURAM	3-8	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
5	VALLAYIL CHEMRAKATTUR	8-15	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
6	ASARITHODU	10-21	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
7	VILAYIL	10-21	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
8	POONKUDIPADAM	8-14	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
9	CHALIYAR	5-10	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10
10	CHALIYAPURAM	3-15	Open Well, Bore well, Jalanidhi and Drinking water supply scheme	9-10

Chaliyar is one of the rivers which doesn't get dried up in the drought season. It is one source of drinking water in the cluster area. Chaliyar is the main source of water to the cluster area. People residing in a number of nearby cluster also depend on this river for irrigation and drinking purposes. Though the river is water rich, the water level depletes during summer and there used to be severe shortage.

11 TRANSPORTS AND COMMUNICATION

The Block Panchayath major regional linkages of Edavanna to Areacode, Areacode to Calicut, Areacode to Manjeri, the importance state highways are S.H 65 and S.H 34. The distances from Areacode to Malappuram 29.3 Kms, Areacode to Calicut 36 Km, Areacode to Edavanna 11km and Areacode to Nilambur 24.3 km. The distance from Areacode to nearest Airport is 20 Km. The nearest railway station is Nilambur which is 24.3 Km

12 SOCIO ECONOMIC CONDITIONS

Table .No 2.6: Population details

SL NO	Watershed	Population			SC			ST		
		Total	Male	Female	Total	Male	Female	Total	Male	Female
1	MELAPARAMBU VALIYATHODU	17733	8750	8933	602	290	312	62	26	36
2	ARIMPRAKUTHU	2174	1024	1150	150	68	82	12	4	8
3	AREACODE	17884	8720	9164	564	242	322	nil	nil	nil
4	UGRAPURAM	4653	2289	2364	91	43	48	nil	nil	nil
5	VALLAYIL CHEMRAKATTUR	19843	9381	10462	763	396	367	nil	nil	nil
6	ASARITHODU	20257	9897	10360	1325	626	699	nil	nil	nil
7	VILAYIL	14033	6746	7287	794	394	400	nil	nil	nil
8	POONKUDIPADAM	6008	2939	3069	116	50	60	nil	nil	nil
9	CHALIYAR	6692	3168	3524	194	94	100	nil	nil	nil
10	CHALIYAPURAM	26083	10655	15428	864	400	464	5	2	3

Areacode A1 Cluster watershed project has a total of 19337 Households with a population of 135360 (*as per Base Line)* out of which 63620 are male and 71740 female. The sex ratio is 1051 female to 1000 male. There are 2400 BPL families. The average family size is 7. The total literacy rate is 95% male literacy rate is 96 percentages and female literacy rate is 92 percentages. The major castes in the Cluster are Muslims, Nair, Thiyyas, Ezhavas, Schedule Caste and Scheduled Tribe.

13 BPL, LAND LESS, SMALL AND MARGINAL FARMERS AND SC &ST POPULATION

Table No.2.7: BPL, Land Less, Small and Marginal Farmers and Sc &St Population

SL NO	WATERSHEDS	BPL	LAND LESS	FARMERS		SC	ST	Wage	Self Employment
				SMALL	MARGINAL	Total	Total		
1	MELAPARAMBU VALIYATHODU	1177	212	4589	596	602	62	712	333
2	ARIMPRAKUTHU	189	156	1236	265	150	12	840	420
3	AREACODE	718	186	5600	368	564	Nil	1972	923
4	UGRAPURAM	463	231	2658	268	91	Nil	1780	833
5	VALLAYIL CHEMRAKATTUR	1043	296	6253	1589	763	Nil	4479	2098
6	ASARITHODU	1283	196	6535	2539	1325	Nil	3021	1418
7	VILAYIL	701	258	5686	1896	794	Nil	3596	1686
8	POONKUDIPADAM	145	249	3269	986	116	Nil	792	371
9	CHALIYAR	416	196	6358	1589	194	Nil	1215	569
10	CHALIYAPURAM	1064	269	6896	1589	864	5	1592	747

13 INFRASTRUCTURE FACILTIES

Table.No.2.8: School Details in Cluster area

Name	Type	Govt	Private	Total
Schools	+2	9	7	16
	H.S	8	4	12
	UP	10	2	12
	LP	8	3	11

There are 16 plus two schools in this cluster area out of this9 under govt and left 7 under Private as well as high school 8, 10 UP and 8L.P schools in this area.

13.1 MEDICAL

There are 26 govt Hospitals out of this 20 Primary health centres and 6 community health centres in this cluster

13.2 CREDIT

Federal BanK Areacode,Service Co-Operative Bank Areacode and Velleri
SMGB Omanoor,Service Co-Operative Bank Omanoor
SMGB Kavanur
SMGB Kuniyil
SMGB Kizhisseri,Service Co-Operative Bank
State bank of Travancore 2 numbers
Canara bank
State bank of India

These are the credit facilities are available in this cluster area.

13.3 MARKETING

- Edavannappara
- Kuniyill
- Keezhisseri
- Areacode
- Kavanur
- Kondotty

These are the major marketing centres of Areacode A1 Cluster area.

14 ANIMAL HUSBANDRY AND DAIRYING

Table. No.2.9: Animal Population of the Grama Panchayaths of Cluster area

Sl. No	Name of Grama Panchayath	Buffalo		Cow		Total Milk/ yr	Goat		Poultry
		No.	Milk(lit/ yr)	No.	Milk(lit/ yr)		No.	Milk(lit/ yr)	
1.	Areacode	86(m&f)	15000	452(m&f)	388800	403800	668	20040	4509
2.	Vazhakkad	47	8225	380	364800	373025	470	14100	11000
3.	Cheecode	100(m&f)	17500	283	271680	289180	608	15200	8582
4.	Muthuvallur&Kuzhimanna	42	7350	314	301440	308790	492	12300	10640
5.	Keezhuparamba	144	25200	468(m&f)	449280	474480	549	13725	15143
6.	Kavanur	110	19250	533	511680	530930	2500	62500	10500

Source: Veterinary Department, Kerala

The above table mentioning the availability of animal population and their productivity. Milk production is more seen in Kavanur and Keezhuparambu Grama Panchayats. Buffalo population is more found in Keezhuparambu and Kavanur Grama Panchayath. Goat Population is very high in Kavanur Grama Panchayath. Poultry more seen in Kavanur Grama Panchayath.

15 LAND HOLDING SIZE

Table No.2.10: Land holding size

Land holding size	Number of Families
0-5 Cents	3863
5-50	2500
50-250	2300
250-500	3000
Above 500	2200

The distribution of ownership holding of land in cluster area is extremely unequal. Table shows, the proportion of households in different size-classes of ownership holdings and the proportion of area owned by households in each size-class. The above 2 hectares of landholders are 2200 in this watershed area.

CHAPTER-3

WATERSHED ACTIVITIES

Watershed management as a strategy has been adapted by Government of India especially in the rain fed regions of semi-arid tropics. These regions are characterized by low and un depependable rain, low soil fertility, poor infrastructure development, low literacy and high incidence of migration. The inherit ant low fertility of crops results in lower productivity of crops which have a very low biological efficiency. Several studies have identified that there is a dire need of a systematic and scientific approach to deal with watershed development. The common guidelines generate a fresh and flexible framework for the next generation watershed development.

1 INSTITUTION BUILDING AND PROJECT MANAGEMENT

The watershed development project has vast potential and scope to empower socially weakness sections of the community. Considering the requirements and priorities of these sections, particular activities were considered to reduce their drudgery. This was involved in skills up gradation programme. People's organizations hold the key in ensuring the exact integration between sustainable development and social equity. Such organizations have representations from socially backward communities and women with separate special interest groups. Within group interactions across group interactions and representation in village level institutions provide a platform for the disadvantaged groups to become a part of mainstream development. It is also essential to note that it was properly ensured that these groups obtain equal opportunities to access the resources developed at the community level.

In order to implement effectively, under the umbrella of State Level Nodal Agency (SLNA) various institutional mechanisms are formed. They are:

Viii. Watershed Cell cum Data Centre (WCDC)

Ix. Project Implementation Agency (PIA)

x. Watershed Development Team (WDT)

Xi. Watershed Committee (WC)

Xii. Neighbourhood Groups

Xiii. Self Help Groups (SHGs)

xiv. User Groups (UGs)

2 STATE LEVEL NODAL AGENCIES

A committed State Level Nodal Agency (SLNA) is constituted by the State Government with Agricultural Production Commissioner as the Chairman and Rural Development Commissioner as the CEO. SLNA is having an independent bank account. The SLNA allow watershed projects for the State on the basis of approved state perspective and strategic plan as per procedure in vogue and manage all watershed projects in the state within the parameters set out in these Guidelines.

3 WATERSHED CELL CUM DATA CENTER (WCDC)

In district, a separate dedicated unit, called the Watershed Cell cum Data Centre (WCDC) is established, which oversees the implementation of watershed programme in the district. WCDC has a separate independent account for this purpose. WCDC function in close co-ordination with the District Planning Committee. WCDC is a separate unit with full time Project Manager and 3 to 4subject matter specialists on Agriculture/ Water Management / Social Mobilisation/ Management & Accounts appointed on the basis of their qualification and expertise on contract/deputation/transfer etc.

4 PROJECT IMPLEMENTING AGENCIES

The Block Panchayath having the major area under the programme is selected as the Project Implementing Agency (PIA) by the State Level Nodal Agency (SLNA) for Integrated Watershed Management Programme (IWMP) in Kerala. The PIAs are responsible for implementation of watershed project. In Malappuram district, for the IWMP – 1, the Areacode Block Panchayath is being selected as the Project Implementing Agency.

The Project Implementing Agency (PIA) provides necessary technical guidance to the Grama Panchayath for preparation of development plans for the watershed through Participatory Rural Appraisal (PRA) exercise, under take community organization and training for the village communities, supervise watershed development activities, inspect and authenticate project accounts, encourage adoption of low cost technologies and build upon indigenous technical knowledge, monitor and review the overall project implementation and set up institutional arrangements for post-project operation and maintenance and further development of the assets created during the project period.

The PIA, after careful scrutiny, shall submit the Action Plan for Watershed Development Project for approval of the DRDA and other arrangements. The PIA shall submit the periodical progress report to DRDA. The PIA shall also arrange physical, financial and social audit of the work undertaken. It will facilitate the mobilization of additional financial resources from other government programmes, such as MGNREGS, BRGF, SGRY,

National Horticulture Mission, Tribal Welfare Schemes, Artificial Ground Water Recharging, Greening India, etc.

5 WATERSHED DEVELOPMENT TEAM

Watershed Development Team is an integral part of the PIA and is set up by the PIA as per the directions of SLNA. WDT has seven members, broadly with knowledge and experience in agriculture, soil science, water management, social mobilization and institutional building. WDT functions in close collaboration with the team of experts at the district and state level. The expenses towards the salaries of the WDT members are charged from the administrative support to the PIA. WDT guides the Watershed Committee (WC) in the formulation of the watershed action plan. WDT assists Gram Panchayath / Gram Sabha in constitution of the Watershed Committee and their functioning. WDT also assist in organizing and nurturing User Groups and Self-Help Groups. WDT undertakes engineering surveys, prepare engineering drawings and cost estimates for any structures to be built. Monitoring, checking, assessing, and undertaking physical verification and measurements of the work done are also done by WDT.

6 WATERSHED COMMITTEE

It is a committee that is constituted by Grama Sabha to implement the watershed project with technical support of WDT in the micro watershed area. This committee is registered as a sub group of the Grama Panchayath. The Grama Sabha of the Panchayath selects the chairman of the watershed committee with the secretary who will be an employee nominated by the Grama Panchayath, preferably the Village Extension Officer. The Watershed Committee (WC) will comprise of at least 9 members, half of the members shall be representatives of SHGs and User Groups, SC/ST community, women and landless persons in the village. One member of the WDT shall also be represented in the Watershed Committee (WC). Where the Grama Panchayath covers more than one village, they would constitute a separate subcommittee for each village to manage the watershed development project in the concerned village. Where a watershed project covers more than one Grama Panchayath, separate committees will be constituted for each Grama Panchayath.

The Watershed Committee was formed in all the 10 micro watersheds of IWMP-1 project area. The IWMP-1 is a cluster of 6GramaPanchayats coming under 1 Block Panchayats. 10 main Watershed Committees and 362 sub-watershed committees are formed at Panchayats keeping all parameter of Watershed Committee keeping the gender sensitive issues intact. Watershed Committee members are briefed about the project objectives and a workshop is also conducted in this regard at every Panchayath. The watershed committee has

a pivotal role to play during and after the project implementation period. The Watershed Committee has a separate bank account to receive funds for watershed projects and will utilise the same for undertaking its activities.

7 NEIGHBOUR HOOD GROUPS

Neighbour Hood Groups are formed in every micro watershed contain 50 households living as clusters. The overall planning, coordination, management and maintenance of the activities pertaining to the area are implemented through this Group. These families are further subdivided into clusters of 7-8 houses and a person is selected to represent this cluster in the Neighbour Hood Committee ensuring the proper representation on different sections. The details of wards, households and NHGs in the project area are given below:

No	Name of Grama Panchayath	Water shed name	No. of wards in full	No. Of wards in part	No. of households	No.NHGs
1.	Areacode	Ugrapuram Areacode Vallayil-Chembrakattur	18	4	7144	120
2.	Vazhakad	Chaliyapuram	7	1	3619	60
3.	Cheekkode	Chaliyar Poomkudipadam	2	7	2032	32
4.	Muthuvallur&Kuzhimanna	Vilayil	2	5	2232	35
5.	Keezhuparambu	Meleparambu Arimbrakuth	9	3	3065	64
6.	Kavanur	Asharithodu	6	5	3348	50

8 SELF HELP GROUPS

Self Help Groups are self motivated, small homogenous groups organized together through highly successful of credit and thrift activities. Self Help Group initiative especially for women helps to uplift their livelihood. The Watershed Committee shall constitute SHGs in the watershed area with the help of WDT from amongst poor, small and marginal farmer households, landless/asset less poor agricultural labourers, women, shepherds and SC/ST

persons. These Groups shall be homogenous groups having common identity and interest who are dependent on the watershed area for their livelihood. Each Self Help Group will be provided with a revolving fund of an amount to be decided by the Nodal Ministry SHG initiative in this project was being organized by having a focused group discussion between various homogenous communities of women based on their livelihood separately. Each group discussed their basic problems with their facilitators.

The major problems identified are:

a) Lack of proper credit facilities due to low intervention of formal financial credit institution.

b) Excessive exploitation of weaker section by money lenders

c) Lack of attitude for saving among poor people due to complex and rigid conventional financial institution structures.

d) Lack of small micro-loans without collaterals and high interest rates.

e) Lack of knowledge on credit, thrift activity and banking. With a view point of these problems it was planned to organize these women to into a group consisting of 5 to 20 in each groups. It was planned to have some capacity building training regarding SHG activities. It was also proposed to have some livelihood activities which will promote women empowerment. This included Bakery units, Garments making, Mushroom Production, and Vermi compost activities with forward and backward linkage. This will ultimately lead into better human development in the village.

9 USER GROUPS

The watershed committee (WC) shall also constitute user groups in the watershed area with the help of WDT. These shall be homogeneous groups of persons most affected by each work/activity and shall include those having land holdings within the watershed areas. Each user group shall consist of those who are likely to derive direct benefits from a particular watershed work or activity. The Watershed Committee (WC) with the help of the WDT shall facilitate resource-use agreements among the User Groups based on the principles of equity and sustainability. These agreements must be worked out before the concerned work is undertaken. It must be regarded as a pre-condition for that activity. The User Groups will be responsible for the operation and maintenance of all the assets created under the project in close collaboration with the Gram Panchayat and the Gram Sabha. The user group collects user charges from their members, oversee the works and manage the benefits.

Some of the points which were considered while forming a user group in the villages of the IWMP-1 project are:

a) In case of, Land Levelling, Farm Bundling, Roof Well Recharge, Kitchen Garden, Demonstration Plot, Contour Trench, Ring Bund, Soil Bund, Staggered Trenches, etc all the beneficiaries of the individual and community activities who are involved are made user group members.

b) In case of a check dam or Gully Plug, all the beneficiaries of the individual check dam where involved as user group members. Focused group discussion will be conducted to between the user groups to discuss the above conditions and to select potential members. It was decided that each group would formulate certain internal rules and have a feeling of ownership with community spirit. Membership was on voluntary and democratic.

10 WATERSHED DEVELOPMENT FUND (WDF)

One of the mandatory conditions for the selection of villages for watershed project is people's contributions towards the watershed development fund. The contribution of WDF shall be a minimum 10 % of cost of NRM works executed on private land only. However, in case of SC/ST, small and marginal farmers, the minimum contribution shall be 5 % of cost of NRM works executed on their land. This contribution would be acceptable either in cash at the time of execution of works or voluntary labour. A sum equivalent to the monetary value of the voluntary labour would be transferred from the watershed project account to the WDF bank account that will distinct from the watershed committee (WC) bank account. User charges, sales proceeds and other contributions, disposal amounts of intermediate usufruct rights shall all so be deposited in the WDF bank account. Income earned from assets created under the project on common property resources shall also be credited to WDF.

11 WATERSHED ACTIVITIES

Watershed management as a strategy has been adopted by Government of India especially in the rain-fed regions of semi-arid tropics. These regions are characterized by low and undependable rain, low soil fertility, poor infrastructure development, low literacy and high incidence of migration. Several studies have identified that there is a dire need of a systematic and scientific approach to deal with watershed development. The common guidelines generate a fresh and flexible framework for the next generation watershed development.

12 CLUSTER APPROACH

This envisages a broader vision of Geo-hydrological unit which involves treating a cluster of micro-watershed. The Areacode A1 Project consists of 10 micro- watersheds namely 24C10a, 24C12a, 24C64a, 24C65a, 24C66a, 24C66b, 24C66q, 24C66r, 24C67Aand 24C68a as their respective codes.

13 BASELINE SURVEY

To access the impact of any watershed development programme a detailed baseline survey has to be conducted. This acts a benchmark for any intervention during and post implementation of any development programme. A detailed baseline survey was undertaken which involved household census survey, Bio-physical survey and Village level data collection from all villages. Household census survey includes a detailed questionnaire which was been filled by visiting each and every household in the village. This gave in the details of the demographic profile of the village, the literacy percentage, SC/ST population, number of BPL household, cattle population, and net consumption rate in the village, average milk production of the cattle and various schemes running and their benefits

14 PARTICIPATORY RURAL APPRAISALS

The past experience of watershed has given tremendous input to focus on creating accountability of the stakeholders towards the programme. This has created an emphasis to include all the stakeholder communities and their local and indigenous Technological Knowledge (ITK) while planning for any activity. Participatory approach provides a new path for planning, implementing, and monitoring and post- withdrawal activities with a complete accountability of the stakeholders. Various PRA techniques like resource mapping, social mapping, and season calendars were used to realize the physical and social orientation of the village in general and watershed in specific. These tools put the villagers in simplicity than the complicated questionnaires. Various tools like Matrix ranking, Venn diagram were used to identify various local vegetations (apt for afforestation), Fodders crops, various institutions and their significance in the life of the farmers.

Following methodologies were adopted for find out the feasible community based activities. They are:

1) Participatory Rural Appraisal (PRA)
2) Household survey
3) Primary &Secondary Data collection
4) NHG formation
5) Group gathering and Meetings
6) Trainings / Awareness creation
7) Field Visit

PRA Programmes were the significant and enthusiastic exercise to enhance the village level planning of IWMP. These exercises were

conducted in all watersheds for the internal support to extending and carry out of the progressive characteristics of IWMP Programmes. Its initiation has been helped to internalize the features like people cantered Project through the Participatory approach. It has also envisaged the present needs and future thrusts of society. Other noteworthy tips are the Watershed community has realized their strength and capacity to take up such projects without external supports. The following tools were applied in the process of DPR Preparation.

- Social and Resource Mapping
- Transact Walk
- Ranking and Prioritizing of Public works
- Socio Economic Dimension Ranking (Sample)
- Problem Tree Analysis
- Resource Inflow and Out Flow
- Pair wise and Matrix
- Livelihood Planning

14.1 Significance of the Participatory Rural Appraisal (PRA)

The study mainly aims to discover the potentials of the area and local needs of the people. It has also internalized the existing crucial issues and constraints in the watershed area. Few drainage line areas of the watersheds is considered as critical area because of its undulating topography, soil erosion, degradation of the agriculture sector, poor livelihood system and water shortage and unscientific waste management etc. Most of the streams become waste carriers. There is only a bare minimum effort to tackle the issues. So IWMP aims to bring up an integrated approach in the restoration of the ecosystem and environment and finally sustainable development in all sectors. Participatory planning, formulation of the strategies, implementation, monitoring and evaluation are the major strategy to be adopted. To initiate the corrective measures we have to mobilize the baseline information from the ground level.

This information is the main source to finalize the intervention strategies. Apart from these peoples participation can be ensured to analyze the ground reality. First hand and secondary data collection will help us the strategy formulation.

Following steps were followed for the preparation of the plan:

- Delineation of watershed map from the topo sheet
- Collection of cadastral map from revenue department
- Formation of study team and training
- Watershed based PRA
- Identification of public works and field level measurement
- Secondary data collection from agriculture and other department
- Consolidation of the data collected from the field
- Preparation of the DPR and PRA reports
- Submission of the DPR to SLNA

14.2 Sustainability assurance strategies

The term sustainability describes the ability of a project to maintain and acceptable level of benefit flows through its life. A programme is sustainable of that continue to operate after withdrawal of monitoring or technical support of the project Transfer of responsibility of running with in their communities is key requisite for ensuring the sustainability

14.3 Steps of people's participation in watershed development programme

- Take grass root level approach in planning and mobilizing, peoples contribution for the project
- Discus plans and options with the leaders have influence in the communities
- Discus plans and options with the leaders have influence in the communities
- Appeal to people individual or collective interest
- Organize the stake holders in to a water users association ensure active involvement by making beneficiary contribute their time and money
- Involve all stake holders in the planning, implementation, monitoring and evaluation

14.4 Benefits of participatory approach

- Access to indigenous expertise or local knowledge

- Tacking in to conservation needs of different groups and individual in the project proposal
- Awareness of financial or other limitation to prepare a plan suitable to all
- Identification sensitive issues and ways to avoid the harmful effects
- Overcoming conflicts to reach a consciousness on project components

14.5 Specific success criteria

- Reduce the rate of Erosion to the barest minimum, less than 1 ton of soil per hector per year.
- Drought control
- Area brought under cultivation
- Availability of pure drinking water throughout the year or the scarcity period is reduced to the minimum.
- Restoration .of the natural resources
- Equal status for women
- Decrease the unemployment problem.
- Bought the watershed community in the mainstream of the society.
- Improved vegetation cover.
- Favourable and positive attitude towards organic farming
- Food security
- Clean water bodies

15 USE OF GIS AND REMOTE SENSING FOR PLANNING

Use of various high science tools has been promoted at various stages of watershed development.

16 GIS

Geographical Information System (GIS) has been used for prioritization process. Various layer maps were created like Geo-morphological, Soil, Drainage, land use, Ground water Status, Drinking water situation and Slope percent. These were all given proper weight age according to the DoLR specification. This helped in prioritization of various watershed areas.

17 GPS

Global Positioning System (GPS) has using for boundary identification and the major bench mark of the watersheds area. After taking using the GPS, it connecting to Google earth then we can derive data which is taken the field.

18 REMOTE SENSING IMAGERIES

Remote sensing imageries are using for the identification physical and antropogenetic changes in the watershed areas, the temporal changes we can identify with help of Toposheet and imageries.

19 PLANNING

An action plan matrix was formulated by State Level Nodal Agency (SLNA) taking into account various features like the slope percent, soil Depth, Soil Texture, Soil erosion in the area for wasteland, forest land and agricultural land. Global positioning System (GPS) was used to identify each and every water conservation structures available in the project area. This was used to create a map. Contour Map of vertical interval of 1 meter at a scale of 1:8000 was used for identifying various locations for soil and water conservation structures.

20 HYDROLOGICAL MODELLING

Hydrology modelling technique was used for locating drainage, stream length, flow direction, sink, and Flow accumulation. This model overlaid over cadastral map to calculate the catchment area of each structures like the check dam etc. This has helped to remove the human error which generally occurs while calculating the catchment area of a check dam.

Details of Scientific Planning and Inputs in IWMP projects

List of scientific criteria/ inputs used	Whether scientific criteria was used
(A)Planning	
Cluster approach	Yes
Whether technical back-stopping for the project has been arranged? If yes, mention the name of the Institute.	
Baseline survey	Yes
Hydro-geological survey	Yes
Contour mapping	Yes
Participatory Net Planning (PNP)	Yes
Remote sensing data-especially soil/ crop/run-off cover	
Ridge to Valley treatment	Yes
Online IT connectivity between Project and DRDA cell/ZP	Yes
Availability of GIS layers	
1. Cadastral map	Yes
2. Village boundaries	Yes

3. Drainage	Yes
4. Soil (Soil nutrient status)	Yes
5. Land use	Yes
6. Ground water status	Yes
7. Watershed boundaries	Yes
8. Activity	Yes
Crop simulation models#	
Integrated coupled analyzer/ near infrared visible spectroscopy/ medium spectroscopy for high speed soil nutrient analysis	
Normalized difference vegetation index (NDVI)#	
Weather Stations	
(B)Inputs	
1. Bio-pesticides	
2. Organic manures	Yes
3. Vermi compost	Yes
4. Bio-fertilizer	
5. Water saving devices	Yes
6. Mechanized tools/ implements	
7. Bio-fencing	Yes
8. Nutrient budgeting	Yes
9. Automatic water level recorders & sediment samplers	
Any other (please specify)	

21 ACTIVITIES PROPOSED

21.1 ENTRY POINT ACTIVITIES

EPA activities are taken up under watershed projects to build a rapport with the village community at the beginning of the project; generally, certain important works which are in urgent demand of the local community are taken up. A group Discussion was conducted with watershed Development Committee regarding the EPA activity, 4 % of the total amount of watershed development fund is using for entry point activity. The villagers discussed various activities which they felt is important but after a brief discussion it was conveyed to them that only those activities can be taken, which revive the common natural resources. It was also taken into priority that there should be an instrument of convergence which will result in sustainability of activities.

In this project area most of the EPA works are given for water harvesting, Bio gas and Wall construction for Anganwadis. Improvement work of Ponds will accumulate water and which will help in summer season.

21.2 WATERSHED DEVELOPMENT WORKS:

Watershed development works are to be done during second phase of watershed project. A multi-tier ridge to valley sequence approach should be approached towards implementation of watershed development projects.

22 NATURAL RESOURCES MANAGEMENT

The physical treatments are to be carried on during the watershed development work phase. While implementing the project, it is necessary that the treatments are carried out starting form ridge and progressing towards the valley. This approach is followed with the following objectives:

a) Protect the upper reaches to avoid erosion and reduce runoff

b) Avoid siltation of structures in the middle and lower catchments.

c) Ensure the cost effectiveness of structures in the valley and

d) Improve overall efficacy of the measures.

This phase is the heart of the programme in which the DPR will be implemented.

Some of the important activities included in this phase are:

a. Ridge Area Treatment : All activities required to restore the health of the catchment area by reducing the volume and velocity of surface runoff, including Regeneration of vegetative cover in forest and common land, afforestation, Staggered trenching, contour and graded bunding, bench terracing etc.

b. Drainage line treatment with a combination of vegetative and engineering structures, such as earthen checks, brushwood checks, gully plugs, loose boulder checks, gabion structures, under dykes etc.

c. Development of water harvesting structures such as low-cost farm ponds, nalla bunds, check-dams, percolation tanks and ground water recharge through wells bore wells and other measures.

23 GULLY PLUG:

The portion where the stream begins, the structure is constructed with arranging loose boulder perpendicular to the flow of water is called gully plug.

Benefits:

1. Prevents soil erosion of land and reduces the flow of water and further prevents the Formation of new streams.

2. Very useful in moisture conservation and desiltation of the streams.

24 CONTOUR TRENCHING:

It is a simple, and a low-cost method of checking the velocity of runoff in the ridge area of any watershed. A contour trench is a trench dug along a contour line. A contour line is a line, which joins together points of the same elevation. Digging a trench along such a line increases the chances of containing runoff for a longer period of time within the trench. It is also true that if trenches were not to follow a contour, such digging could actually increase the possibility of soil erosion because there would be a rise in the velocity of runoff following an increase in the slope of the land.

Objectives:

• Slowing down the velocity of runoff

• Checking soil erosion, and

• Improving local soil moisture profile

Contour trenches are constructed in the ridge area of a watershed. Rainwater, which falls in this area, flows unchecked carrying with it eroded soil into the flatter portion of the watershed referred to as the "valley". This eroded soil gets deposited as silt in the reservoirs and ponds, thereby reducing their life. Thus, any water harvesting work undertaken in the valley will become meaningless unless appropriate measures such as contour trenching are undertaken to control runoff and soil erosion on the ridge. Contour trenches serve to collect the rainwater that falls in the ridge area. This way the soil moisture profile in the area adjacent to the trench

gets improved. Along with the water, the eroded fertile topsoil also gets deposited in the trench. It is, therefore, necessary to combine trench construction with plantation.

25 CONTOUR EARTHEN BUNDS

Contour bunding is a simple and low cost method of checking the velocity of runoff in the ridge area of any watershed. A contour bund is a bund constructed along a contour line. A contour line is a line, which joins together points of the same elevation. Making a bund along such a line increases the chances of containing runoff for a longer period of time within the bund.

Objectives:

• Slowing down the velocity of runoff

• Checking soil erosion

• Improving local soil moisture profile

Contour bunds are constructed on the ridge area of a watershed. Rainwater, which falls in this area, flows unchecked carrying with it eroded soil into the flatter portion of the watershed - the "valley". This silt gets deposited into the reservoirs and ponds, thereby reducing their life. Thus, any water harvesting work undertaken in the valley will become meaningless unless appropriate measures such as contour trenching and bunding are undertaken to control runoff and soil erosion on "the ridge. Like contour trenches, blinds also collect the rainwater that falls in the ridge area. This way the soil moisture profile in the area adjacent to the blind is improved. Along with the water, eroded fertile topsoil also gets deposited in the blind. It is, therefore, important to combine contour blinding with appropriate vegetative measures.

26 RAINWATER HARVESTING FROM ROOFTOP CATCHMENTS

Rooftop Rain Water Harvesting is the technique through which rain water is captured from the roof catchments and stored in reservoirs. Harvested rain water can be stored in sub-

surface ground water reservoir by adopting artificial recharge techniques to meet the household needs through storage in tanks. The main objective of rooftop rain water harvesting is to make water available for future use. Capturing and storing rain water for use is particularly important in dry land, hilly, urban and coastal areas. Rainwater harvesting usually involves collecting water from cleaner surfaces, such as roofs. There are several reasons for harvesting rainwater today including: low-cost irrigation, domestic water supply, water supply, water and soil conservation, aquifer recharge, and flood control. It is also desirable to use rain because of the high quality and softness of the water and the relative absence of contaminates such as disinfection by products (chlorinated hydrocarbons), endocrine disrupting compounds (antibiotics and hormones), heavy metals, agricultural chemicals and chlorine resistant microbes that are increasingly appearing in our ground and tap water. Rainwater collection systems are cost effective and easy to maintain by the average homeowner and are easier to install and use than wells or surface ponds.

27 WELL RECHARGE

The broad aim of the programme is to improve the water quantity and quality levels of homestead open dug wells and small homestead ponds. This will contribute to enhanced health and welfare of the community through improved access to drinking water. The reduction of public spending on Tanker Water Distribution to the water stressed regions which is common during summer is also envisaged as a broader goal of the programme.

The specific objectives of the programme are

(i) Recharge ground water

(ii) Improved drinking water availability across the year

(iii) Significantly reduce the impact of drought and consequent public spending on supply of drinking water in tankers to the water stressed regions

(iv) Improved agricultural production and productivity.

The programme would also envisage strengthening of the decentralization programme and the PRIs, in discharging their basic mandate in water sector through community efforts that are cost effective and sustainable.

28 BIOGAS PLANTS

The term 'biogas' is commonly used to refer to a gas which has been produced by the biological breakdown of organic matter in the absence of oxygen. The gases methane, hydrogen and carbon monoxide can be combusted or oxidized with oxygen and the resultant energy release allows biogas to be used as a fuel. Biogas is a commonly used bio fuel around the world and is generated through the process of anaerobic digestion or the fermentation of biodegradable materials such as biomass, manure, sewage, municipal waste, rubbish dumps, septic tanks, green waste and energy crops. This type of biogas comprises primarily methane and carbon dioxide.

Biogas has a wide variety of uses and can be used as a relatively low-cost fuel for the generation of energy and heating purposes, such as cooking. For example, basically any facilities which need power are able to use biogas to run engines, or to generate either mechanical or electrical power. Biogas can be compressed, similar to natural gas, and is able to be used to power motor vehicles. Biogas is a renewable fuel, so it qualifies for renewable energy subsidies in some parts of the world. It is possible to concentrate the methane within biogas to the same quality standards as fossil fuel derived natural gas to produce bio-methane. If concentrated and compressed this biogas can then be used in vehicle transportation.

29. LIVELIHOOD SUPPORT SYSTEM

One of the key features of the watershed development includes focused priority on livelihood activities for landless/asset less persons. Nine percent of the total project cost has been assigned to support the livelihood activities for landless/asset less households. This

component aims to maximize the utilization of potential generated by watershed activities and creation of sustainable livelihoods and enhanced incomes for households within the watershed area. This will facilitate inclusiveness through enhanced livelihood opportunities for the poor through investment into assets, improvements in productivity and income, and access of the poor to common resources and benefits and augment the livelihood strategy at household level.

30 GUIDING PRINCIPLES

Livelihood improvement initiative emphasizes on natural resource based activities and conforms to principles of equity, gender sensitivity and transparency. It strives to:-

a. Enhance livelihood opportunities for the poor through investment into asset creation and improvement in productivity and income.

b. Improve access of the marginalized communities, including SC/ST, landless/asset less people, women, etc., to the benefits.

c. Select the beneficiaries in a transparent manner. Livelihood guidelines for landless/ asset less households aims at improved household income, participation and division of labour, access to information, knowledge, appropriate technologies and resources.

31. PLANNING AND IMPLEMENTATION

The most important aspect is the inclusion of 'micro level livelihood planning' an empowerment tool for the marginalized communities. This planning helps in understanding existing livelihood assets/capitals in a highly participatory manner to augment the existing livelihood platform.

Planning

i. An awareness drive was undertaken at Panchayath level for communication & sensitization of the target beneficiaries

ii. A "Livelihood Action Plan" (LAP) was prepared for availing the funds under the livelihood component.

iii. The livelihood action plan was prepared by analyzing the socio-economic conditions and existing livelihood capitals of the watershed, during the situation analysis by means of PRA and focus group discussion, in order to facilitate collection of information to feed into the livelihood action planning process. Livelihood action plan contains schedule of activities, interventions, no. of SHGs to be assisted and expected outcome.

iv. To promote convergence, the PIA has worked in close association with other Employment generating programmes such as MGNREGS, NRLM, Kudumbashree, VFPCK, NHM, etc.

32. MODE OF OPERATION

i. The livelihood action plan will be implemented through Self Help Groups and/or their federation. However financial support to enterprising individuals was also be considered subject to a maximum of 10% of the funds under the livelihood component.

ii. Livelihood activities will be carried out either through the existing SHGs having good performance or new SHGs formed with a group of 5-20 persons.

iii. SHGs selected for implementing livelihood action plan will be homogeneous in terms of their existing livelihood capitals, common interest and need.

iv. SHGs can undertake any permissible activity jointly as a group or the group may decide to support individual(s) for the activities under the umbrella of the main SHG. In case of individual support under the SHGs, the individuals will be accountable to the main SHG for finances and performance.

v. The financial support to enterprising individuals who prepare and submit a viable livelihood proposal, will be considered by Watershed Cell cum Data Centre (WCDC) on recommendation of the Watershed Committee (WC). The plan has to be approved by the

WCDC before extending financial support. However, support to individuals should not exceed a maximum of 10 % of funds under the livelihood component.

33. FUNDING PATTERN

The funding pattern under the livelihood components will be as follows

1 Seed money for Enterprising Individuals 10 percent

2 Seed money for SHGs 60 percent

3 Funding for Major Livelihood activities 30 percent

34. CAPACITY BUILDING FOR BENEFICIARIES

The capacity building needs of the marginalized communities, including SC/ST, landless/asset less people, women, etc is also be included in the livelihood action plan prepared after the livelihood analysis. The capacity building aims at skill enhancement and not just knowledge and information. The expenditure for the training for livelihood component will be met from 5% of the budget component of the project cost earmarked for institution and capacity building.

35. MAJOR INTERVENTIONS

- Poultry
- Dairy
- Tailoring Unit
- Goat Rearing
- Mushroom cultivation
- Food processing Unit

36. PRODUCTION SYSTEM MANAGMENT ACTIVITIES

One of the important components in the watershed development activities under IWMP includes support to production/farming system based livelihood activities and enterprises. Ten percent of the total project cost is assigned to support the production system and microenterprises for land

owning households. This component aims to diversify and maximize the production and productivity of agriculture system as a whole and targets the land holders with cascading benefits to landless agriculture labour, leased in farmers and share -croppers.

The objective is to

a) Promote diversified production/farming systems based livelihood activities/ Interventions, and.

b) Encourage farmers to adopt and up-scale successful experiences of proven technologies, integrated farming systems and improved farming practices for Livelihood augmentation.

37. MODE OF OPERATION AND ELIGIBILITY FOR AVAILING THE PRODUCTION SYSTEM FUNDS:

a. Individual land holders/owners can avail the benefits of production system on their private land. The small and marginal farming households, women headed farming households, SC & ST farmers will be given preference based on the wealth ranking exercise conducted during PRA. Those households whose land is in close proximity to the developed natural resources may be preferred to make full use of natural resource potential. b. Selection of beneficiaries will be done by PIA, in consultation with WC. c. Beneficiaries having common interest will be organized into User Groups to pool and manage their resources as well as manage aggregating their produce for effective disposal and marketing, besides maintaining their natural resource base. This may also provide a means for deciding resource use arrangements based on equity and sustainability.

d. The funds were earmarked for cost intensive farming system based livelihood activities/interventions such as aquaculture, agriculture, horticulture, agro forestry, animal husbandry, agro-processing, value addition, etc.

e. The beneficiary contribution of farmers will be 20 percent for general category and 10 percent for SC/ST.

38. CAPACITY BUILDING FOR BENEFICIARIES

The capacity building needs of the marginalized communities, including SC/ST, landless/asset less people, women, etc is also be included in the action plan prepared for production systems and

micro enterprises. The capacity building aims at skill enhancement and not just knowledge and information. The expenditure for the training for production systems and micro enterprises will be met from 5% of the budget component of the project cost earmarked for institution and capacity building.

39. MAJOR INTERVENTIONS SUGGESTED

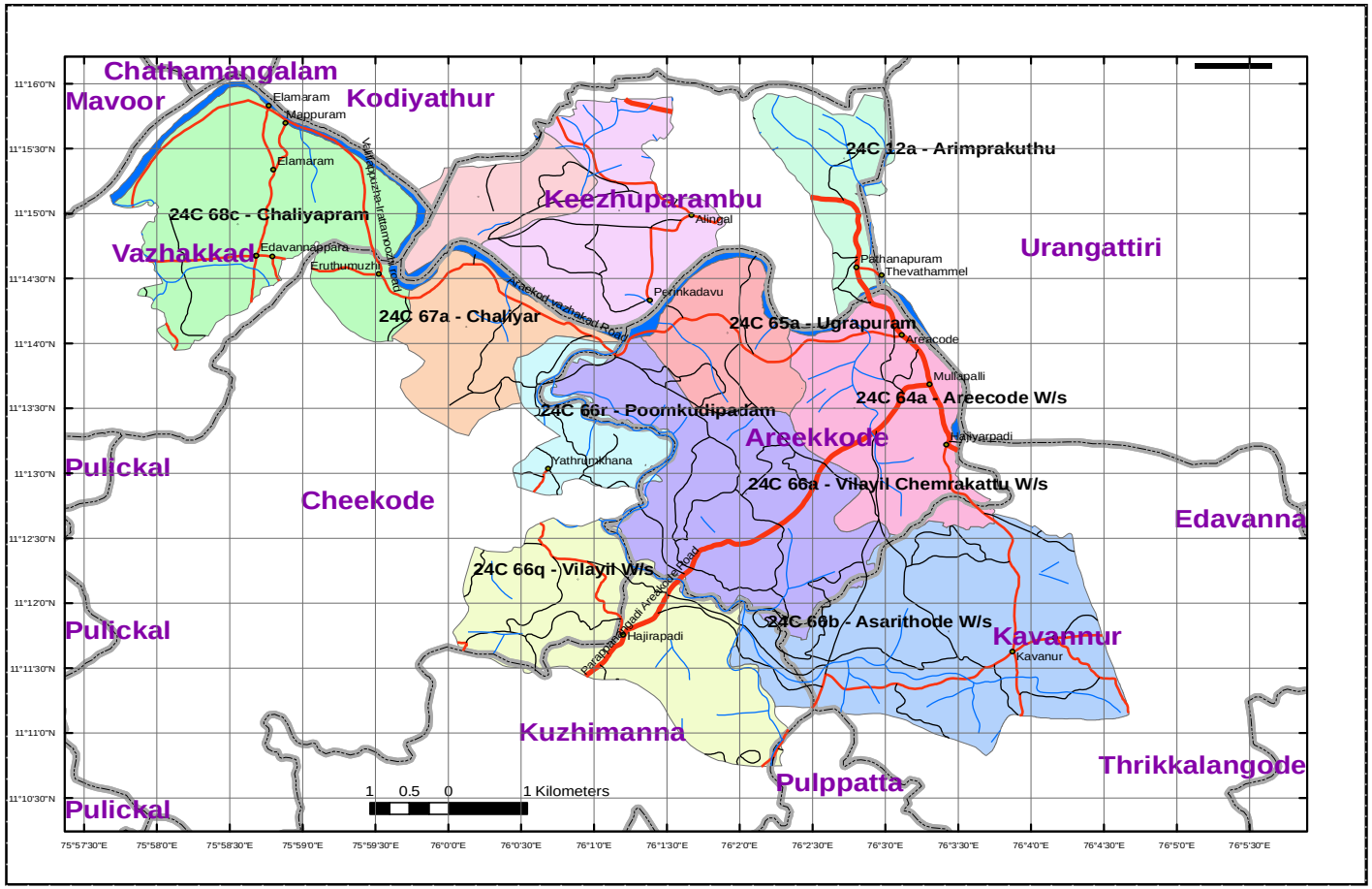
The major interventions suggested under the Production System and Microenterprises based livelihood activities are the following:

- Vermi compost
- Spices cultivation
- Tuber crops
- Poly house
- Banana cultivation
- Vegetable garden
- Fodder crops
- Inter crops

PART II

INDIVIDUAL WATERSHEDS

INDIVIDUAL WATERSHED BASED DETAILS



Location of Cluster (Areacode AII)

WATERSHED LEVEL DETAILS

NAME OF WATERSHED	CODE	Grama Panchayath	Block	TOTAL AREA	TREATABLE AREA	Project Cost	No. Of SHGS
MELAPARAMBU VALIYATHODU	24C10a	Keezhuparamba	Areacode	701	600	9000000	58
ARIMPRAKUTHU	24C12a	Keezhuparamba		265	265	3975000	6
AREACODE	24C64a	Areacode		539	495	7425000	49
UGRAPURAM	24C65a	Areacode		327	327	4905000	18
VALLAYIL CHEMRAKATTUR	24C66a	Areacode		840	840	12600000	53
ASARITHODU	24C66b	Kavanur		977	976	14640000	50
VILAYIL	24C66q	Cheecode		939	873	13095000	35
POONKUDIPADAM	24C66r	Cheeode		202	195	2925000	15
CHALIYAR	24C67a	Cheacode		300	300	4500000	18
CHALIYAPURAM	24C68a	Vazhakkad	Kondotty	392	392	5880000	60
TOTAL				5482	5263	78945000	

LONGITUDINAL AND LATTITUDINAL EXTENTIONS OF INDIVIDUAL WATERSHEDS

NAME OF WATERSHED	CODE	Grama Panchayath	Block	TOTAL AREA	TREATABLE AREA	LATITUTUDE	LONGITUDE
MELAPARAMBU VALIYATHODU	24C10a	Keezhuparamba	Areacode	701	600	11^0 16'0" N to 11^o 14' 0"N	76^o 0'0" to76^o 2'0E
ARIMPRAKUTHU	24C12a	Keezhuparamba		265	265	11^0 14'30" N to 11^o16'30"	76^o 1'0" to 76^o 3'30"E
AREACODE	24C64a	Areacode		539	495	11^0 3' 0"N to 11^0 14' 0" N	76^0 2' 0"E to76^0 4' 0" E
UGRAPURAM	24C65a	Areacode		327	327	11^0 13'3" N to11^o14'30"N	76^o 1'0"E to76^o 2'30"E
VALLAYIL CHEMRAKATTUR	24C66a	Areacode		840	840	11^0 12'0" N to11^o11'14"N	76^o 0'30"E to 76^0 3'30"E
ASARITHODU	24C66b	Kavanur		977	976	11^0 11'0" N to11^o 12'30"N	76^o 2'0"E to76^o 4'30"E
VILAYIL	24C66q	Cheecode		939	873	11'0" 11^o N to12' 0"11^0 N	76^o 0'0"E to 76^o 2'3"E
POONKUDIPADAM	24C66r	Cheeode		202	195	$11^0$13'0" N to11^o 14' 0"N	76^o 30'0" to76^o 1'30"E
CHALIYAR	24C67a	Cheacode		300	300	11^0 11'0" N to11o12'30"N	76^o 0'0" to76o 2'30"E
CHALIYAPURAM	24C68a	Vazhakkad	Kondotty	392	392	11^0 14'0" N to 11^o16' 0"N	76^o 58'0" to 76^o6'0" E
				5482	5263		

MELEPARAMBU- 24C10a

LOCATION AND EXTENT

This watershed is located in Keezhuparambu Grama Panchayath, Areacode block of the Malappuram district .It includes the wards of 2, 3, 4,9,10,11,12,13 and 14. The river valley of this watershed extends to a total area of 701 hectare bearing the code 24c 10 a. The watershed area is situated between 11^0 16'0" N and 11^o 14' 0"North latitude and between76^o0'0" and 76^o2'0" in the east longitude. The boundaries of the watershed are north Kodiyathur Grama Panchayath, South Chaliyar River, East Cherupuzha and West Kuttodi

PROBLEMS

1 AGRICULTURAL SECTOR

1. Lack of irrigation facilities
2. Lack of bio fertilizers
3. Inflation of chemical fertilizers
4. Scarcity of labours
5. Ignorance about scientific agriculture
6. Pest attack on coconut trees
7. Hike in cost of productivity and lack of getting fair value for crops due to following the traditional agricultural methods.

2 ANIMAL PRODUCTION SECTOR

1. Scarcity of hybrid cows and goats
2. Hike in price of cattle feed.
3. Lack of proper possibility for milk selling
4. Lack of scientific, modernized cowsheds

3 WATER AND SOIL CONSERVATION SECTOR

1. Canals and other water reservoirs are being filled with soil
2. Lack of water and soil preservation activities
3. Commonness of land filling and razing of earth
4. Water reservoirs being made impure by sewage disposal
5. Overuse of chemical fertilizers and insecticides

1.

2. ENTRY POINT ACTIVITIES

In Meleparambu watershed the EPA work are the improvement work to Necholikulam, Ariyanipetta kulam, and Changampothuvayal in Areacode Grama Panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the

watershed of coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents.

Improvement work	Amount	**Survey No**
Nechikulam	**360000**	**77/4**
AriyanipottaKulam		**21/136**
Changampothuvayil		**133/12**
Choorottukulam		**79/5**

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

2. 1 ACTIVITY WISE SUMMARY OF AREA TREATMENT- NATURAL RESOURSE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT/WDF	IWMP SHARE	BENIFICARY SHARE/WDF	TOTAL AMOUNT
1	Soak pit	Nos.	120	1299		1169.1	129.9	140292	15,588	155,880
2	Water recharging	Nos	150	5000		4500	500	675000	75000	750,000
3	Rain water harvesting tank	Nos.	1	85000		76500	8500	76500	8,500	85,000
4	Paddy field bund	Cum	4852	61.83		55.647	6.183	269999	30,000	299,999
5	Centripetal terracing	Nos	8000	0	MNREGS	0	0	0	0	0
6	Mulching	Nos.	5000	0	MNREGS	0	0	0	0	0
7	Earthen Contour Bund	m	2000	61.83		55.647	6.183	111294	12,366	123,660
8	Water Absorption Pits	Nos.	500	104		93.6	10.4	46800	5,200	52,000
9	Horticulture Development	Nos.	3000	60		54	6	162000	18,000	180,000
10	Stone pitched bund	m	3000	143.52		129.168	14.352	387504	43,056	430,560
11	Agro-Forestry	Nos.	3000	40		36	4	108000	12,000	120,000
12	Live Fencing	m	1500	20	MNREGS	0	0	0	0	0
13	Biogas	Nos.	2	24000		21600	2400	43200	4,800	48,000
14	Arecanut Basin	Nos.	3000		MNREGS	0	0	0	0	0
15	Biogas in schools	Nos	1	45000		40500	4500	40500	4,500	45,000
	Total							**2061089**	229,010	2,290,099
	General works							**2978911**		
	Grant total							**5040000**		

2.2 IMPROVEMENT WORKS TO PUBLIC PROPERTY

SL.NO	NAME OF POND	LENGTH	WIDTH	DEPTH	DEPTH OF SILT	WORK	DESILTATION (m3) [7]	COST FOR SILT REMOVAL(7*128.3)	COST FOR BAILING OUT OF WATER	TOTAL COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	PULLIKAL KULAM	10	12	2	1.5	DESILTATION	180	23094	4575	27669	24902.1	2766.9
2	CHOLAYIL KULAM	10	9	2.5	1.5	DESILTATION	135	17320.5	4575	21895.5	19705.95	2189.55
3	NECHIKKATT KULAM	10	8	3	1.5	DESILTATION	120	15396	4575	19971	17973.9	1997.1
4	POTTAMAL KUL;AM	10	10	3	1.5	DESILTATION	150	19245	4575	23820	21438	2382
	Total									**93356**	**84,020**	**9,336**

2.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	CONVERGENCE	IWMP SHARE	BENIFICARY SHARE/WDF
1	ANJANGAD THOD	125	0.5	1.5	1519	189,875.00	PRI/MI	170887.5	18,987.50
2	VALLAKARA VALIYATHOD	115	0.5	1.5	1519	174,685.00	PRI/MI	157216.5	17,468.50
3	NECHIKADU THOD	115	0.5	1.5	1519	174,685.00	PRI/MI	157216.5	17,468.50
4	CHALIYAPADAM MOOZHIKKAL THOD	115	0.5	1.5	1519	174,685.00	PRI/MI	157216.5	17,468.50
5	MADANATHUKUZHI VADAKEPADATH THOD	250	0.5	1.5	1519	379,750.00	PRI/MI	341775	37,975.00
6	THENAM KADAVU THOD	200	0.5	1.5	1519	303,800.00	PRI/MI	273420	30,380.00
7	CHEERANKULAM THOD	210	0.5	1.5	1519	318,990.00	PRI/MI	287091	31,899.00
8	KOZHISSERI MUNDIKANDAM VADAKKEVALI THOD	240	0.5	1.5	1519	364,560.00	PRI/MI	328104	36,456.00
9	ARIYANICOLONY KULAM THOD VALIYATHOD	125	0.5	1.5	1519	189,875.00	PRI/MI	170887.5	18,987.50
	TOTAL					2,270,905.00		**2043815**	**227,091**

2.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE / m3	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	ANJANGAD THOD	200	2	0.5	200	111.6	22,320	20088	2,232
2	VALLAKARA VALIYATHOD	60	2	0.25	30	111.6	3,348	3013	335
3	NECHIKADU THOD	100	2	0.6	120	111.6	13,392	12053	1,339
4	CHALIYAPADAM MOOZHIKKAL THOD	100	1	0.5	50	111.6	5,580	5022	558
5	MADANATHUKUZHI VADAKEPADATH THOD	100	2	0.5	100	111.6	11,160	10044	1,116
6	THENAM KADAVU THOD	110	2.5	0.5	137.5	111.6	15,345	13811	1,535
7	CHEERANKULAM THOD	118	2	0.4	94.4	111.6	10,535	9482	1,054
8	KOZHISSERI MUNDIKANDAM VADAKKEVALI THOD	190	2	0.5	190	111.6	21,204	19084	2,120
9	ARIYANICOLONY KULAM THOD VALIYATHOD	200	1.5	0.5	150	111.6	16,740	15066	1,674
	Total						**119,624**	**107662**	**11,962**

2.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	RATE/m	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	ANJANGAD THOD	200	20	4,000	3,600	400
2	THENAM KADAVU THOD	300	20	6,000	5,400	600
3	CHEERANKULAM THOD	350	20	7,000	6,300	700
4	KOZHISSERI MUNDIKANDAM VADAKKEVALI THOD	300	20	6,000	5,400	600
5	ARIYANICOLONY KULAM THOD VALIYATHOD	400	20	8,000	7,200	800
	Total			**31,000**	**27,900**	**3,100**

2.6 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	CONSTRUCTION OF VCB IN CHALIYAPADAM VALIYA THODU	795017	715515	79502

3. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence, a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit(WDF)	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	10	30000/Ha		27,000	3,000	**270000**	**30000**	**300000**
2	Tuber crops	12	25000/Ha		22,500	2,500	**270000**	**30000**	**300000**
3	Banana cultivation	2000	15/seedling		13.5	1.5	**27000**	**3000**	**30000**
4	Fodder Crops	4	30000/Ha		27,000	3,000	**108000**	**12000**	**120000**
5	Vegetable garden	500	500/unit		450	50	**225000**	**25000**	**250000**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**900000**	**100000**	**1000000**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

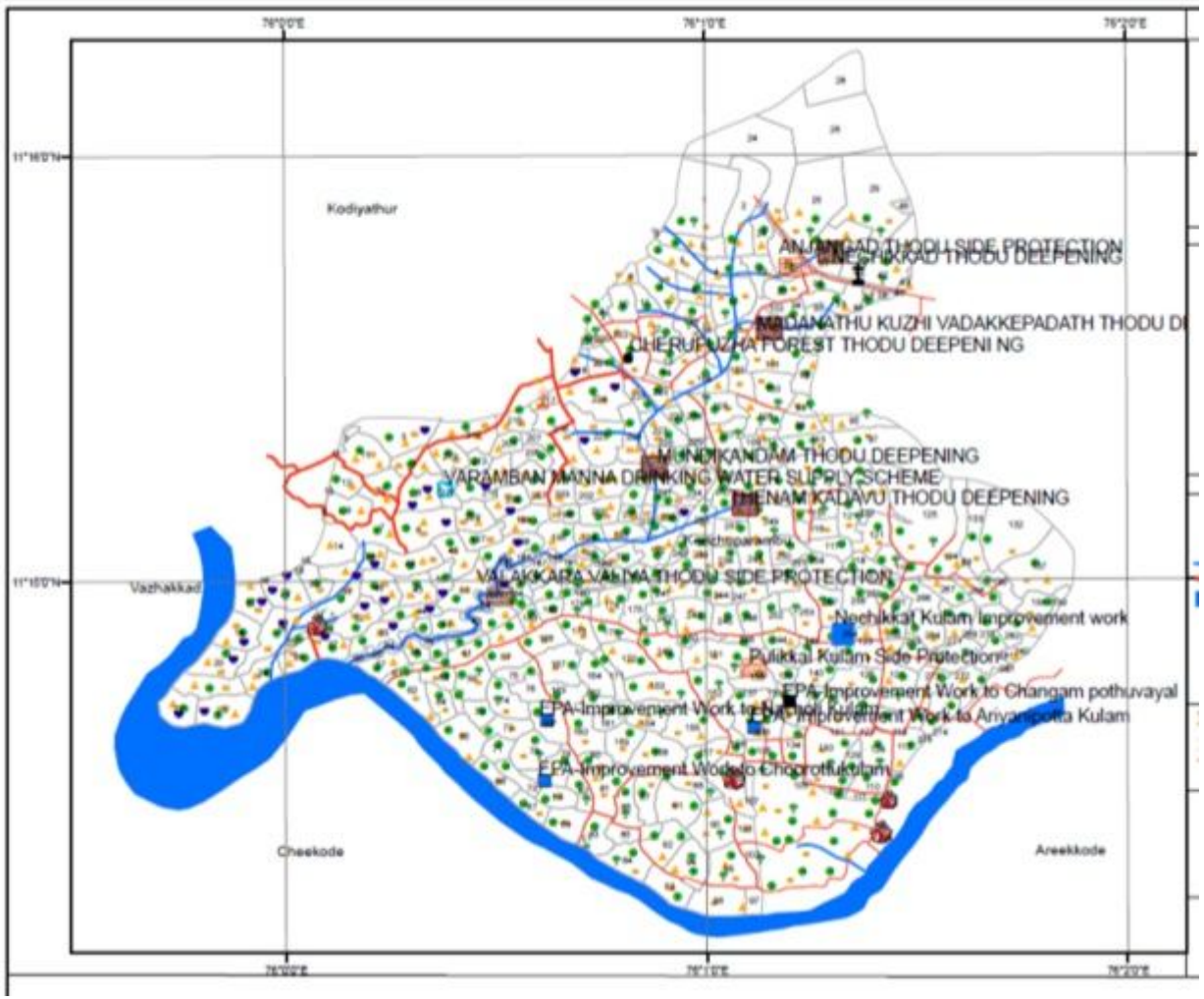
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT (Beneficiary)	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	140	**800**	**720**	**80**	**112000**	**100800**	**11200**
Dairy	10	**50,875**	**45787.5**	**5087.5**	**508750**	**457875**	**50875**
Tailoring units	10	**10,000**	**9000**	**1000**	**100000**	**90000**	**10000**
Goat Rearing	5	**17,800**	**16020**	**1780**	**89000**	**80100**	**8900**
Mushroom	5	**8,000**	**7200**	**800**	**40000**	**36000**	**4000**
Food processing	1	**25,000**	**22500**	**2500**	**25000**	**22500**	**2500**
Apiculture	5	**5000**	**4500**	**500**	**25000**	**22500**	**2500**
Rounded figure					**250**	**225**	**25**
Total					900000	**810000**	90000

5. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING					
TOTAL AREA=	600	X	15000	9000000	(4%)450000
	%				
FIRST YEAR	2		180000		
SECOND YEAR	1.5		135000		
THIRD YEAR	1		90000		
FOURTH YEAR	0.5		45000		

7. ANNUAL ACTION PLAN

Total treatable area – 600							**Total amount - 600X 15000/ HA = 9000000**				
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	180000	18000	9000	360000	180000	90000	1440000	243000	180000	0	2700000
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	225000	22500	22500	0	180000	0	1350000	162000	270000	0	2232000
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	225000	22500	22500	0	90000	0	1350000	243000	270000	0	2223000
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	270000	27000	36000	0	0	0	900000	162000	180000	270000	1845000
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	**900000**	**90000**	**90000**	**360000**	**450000**	**90000**	**5040000**	**810000**	**900000**	**270000**	**9000000**
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Kodiyathur
Vazhakkad
Cheekode
Areekkode
ANJANGAD THODU SIDE PROTECTION
CHERUPUZHA FOREST THODU DEEPENI NG
MUNDIKANDAM THODU DEEPENING
VARAMBAN MANNA DRINKING WATER SUPPLY SCHEME
MENAM KADAVU THODU DEEPENING
VALAKKARA VALMA THODU SIDE PROTECTION
Nechikkat Kulam Improvement work
Pulikkal Kulam Side Protection
EPA-Improvement Work to Changam pothuvayal
EPA-Improvement Work to Ariyampotta Kulam
EPA-Improvement Work to Chocrotfuttulam

ARIMBRAKUTH-24C12a

LOCATION AND EXTENT

This watershed is situated in Keezhuparambu Grama Panchayath of Areacode block of the Ernad Taluk in Malappuram district. It includes the 7 th ward completely and partially of 6 ward. It includes places like Pallipadi, Koombra, and Madrassakunnu. The river valley of this watershed extends to a total area of 265 hectare bearing the code 24c12 a. The watershed area is situated between 11^0 14'30" N and 11^o 16' 30"North latitude and between76^o1'0" and 76^o3'30" in the east longitude. The boundaries of the watershed are north Kodiyathur Grama Panchayath, South Chaliyar River, East Areacode-Mukkom Road and West Kallittapalam.

1. PROBLEMS

AGRICULTURAL SECTOR

3. Lack of irrigation facilities
4. Lack of bio fertilizers
5. Inflation of chemical fertilizers
6. Scarcity of labours
7. Ignorance about scientific agriculture
8. Pest attack on coconut trees
9. Hike in cost of productivity and lack of getting fair value for crops due to following the traditional agricultural methods.

ANIMAL PRODUCTION SECTOR

1. Scarcity of hybrid cows and goats
2. Hike in price of cattle feed.
3. Lack of proper possibility for milk selling
4. Lack of scientific, modernized cowsheds

WATER AND SOIL PRESERVATION SECTOR

1. Canals and other water reservoirs are being filled with soil
2. Lack of water and soil preservation activities
3. Commonness of land filling and razing of earth
4. Water reservoirs being made impure by sewage disposal
5. Overuse of chemical fertilizers and insecticides

1. ENTRY POINT ACTIVITIES

In Arimbrakuth watershed the EPA work is the improvement work to Koombra kulam in Keezhuparambu Grama Panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents.

Watershed	Work	Amount
Arimbrakuth	**Koombrakulam**	**1,59,000**

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

2.1. ACTIVITY WISE SUMMARY OF AREA TREATMENT - NATURAL RESOURSE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT/WDF	IWMP SHARE	BENIFICARY SHARE/WDF
1	Soak pit	Nos.	50	1299		1169.1	129.9	58455	6495
2	Water recharging	Nos	60	5000		4500	500	270000	30000
3	Rain water harvesting tank	Nos.	2	85000		76500	8500	153000	17000
4	Paddy field bund	Cum.	900	61.83		55.647	6.183	50082	5565
5	Centripetal terracing	Nos	3000	0	MNREGS	0	0	0	0
6	Mulching	Nos.	1000	0	MNREGS	0	0	0	0
7	Earthen Contour Bund	m	3747	61.83		55.647	6.183	208509	23168
8	Water Absorption Pits	Nos.	500	104		93.6	10.4	46800	5200
9	Horticulture Development	Nos.	1000	60		54	6	54000	6000
10	Stone pitched bund	m	1000	143.52		129.168	14.352	129168	14352
11	Agro-Forestry	Nos.	1000	40		36	4	36000	4000
12	Live Fencing	m	500	20	MNREGS	0	0	0	0
13	Biogas	Nos.	2	24000		21600	2400	43200	4800
14	Arecanut Basin	Nos.	1000		MNREGS	0	0	0	0
15	Biogas in schools	Nos	0	45000		40500	4500	0	0
	Total							**1058214**	
	General works							**1167786**	
	Grant total							**2226000**	

2.2 IMPROVEMENT WORK IN PUBLIC RESERVOIRS

SL.NO	NAME OF POND	LENGTH	WIDTH	DEPTH	DEPTH OF SILT	WORK	DESILTATION (m3)	COST FOR SILT REMOVAL	COST FOR BAILING OUT OF WATER	COST FOR CONSTRUCTION OF RETAINING WALL	TOTAL COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	Vellacholil kulam	10	8	3	1.5	DESILTATION	120	15,396	4,575	150000	169,971	152974	16997

2.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	CONVERGENCE	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	Koombraarimbrakuththod	90	0.5	1.5	1519	PRI/MI	136710	123039	13671
2	Cherupuzha Forest Thod	100	0.5	1.5	1519	PRI/MI	151900	136710	15190
3	poovathingalPannakulam Drainage	90	0.5	1.5	1519	PRI/MI	136710	123039	13671
4	poolakkachalCherupuzha Drainage	85	0.5	2.4	4006	PRI/MI	340510	306459	34051
	Total						**765,830**	**689247**	**76,583**

2.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	KoombraArimbrakuththod	300	3	1.5	1350	111.6	150660	135594	15066
2	CherupuzhaForstThod	100	3	2	600	111.6	66960	60264	6696
	Total						**217620**	**195858**	**21,762**

2.5 VEGETATIVE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	WIDTH	QTY (m2)	RATE/m	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	Koombra Arimbrakuth thod	600	3	1.5	20	12000	10800	1200
2	Cherupuzha Forst Thod	89	3	2	20	1780	1602	178
	Total					**13,780**	**12402**	**1,378**

2.6 GENERAL WORK

SL NO	NAME OF WORK	ESTIMATE COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	VARAMBINMANNA DRINKING WATER SUPPLY SCHEME	130339	117305	13,034

3. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence , a planned intervention in the sector shall boost up the production from the sector in the project area. Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

Sl.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/	Beni	Total IWMP	WDF	Total

No.					unit	contribution/unit-WDF	share (90%)		Amount
1	Spices cultivation	4	30000/Ha		27,000	3,000	**108000**	**12000**	**120000**
2	Tuber crops	5	25000/Ha		22,500	2,500	**112500**	**12500**	**125000**
3	Banana cultivation	911	15/seedling		13.5	1.5	**12299**	**1367**	**13665**
4	Fodder Crops	2	30000/Ha		27,000	3,000	**54000**	**6000**	**60000**
5	Vegetable garden	246	500/unit		450	50	**110700**	**12300**	**123000**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure						**1.50**	**0.17**	**1.67**
TOTAL AMOUNT							**397500**	**44166.67**	**441666.67**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT (Beneficiary)	TOTAL AMOUNT	IWMP SHARE	WDF

Poultry	78	**800**	**720**	**80**	**62400**	**56160**	**6240**
Dairy	3	**50,875**	**45787.5**	**5087.5**	**152625**	**137362.5**	**15262.5**
Tailoring units	3	**10,000**	**9000**	**1000**	**30000**	**27000**	**3000**
Goat Rearing	3	**17,800**	**16020**	**1780**	**53400**	**48060**	**5340**
Mushroom	3	**8,000**	**7200**	**800**	**24000**	**21600**	**2400**
Food processing	2	**25,000**	**22500**	**2500**	**50000**	**45000**	**5000**
Apiculture	5	**5000**	**4500**	**500**	**25000**	**22500**	**2500**
Rounded figure					**75**	**67.5**	**7.5**
Total					397500	**357750**	39750

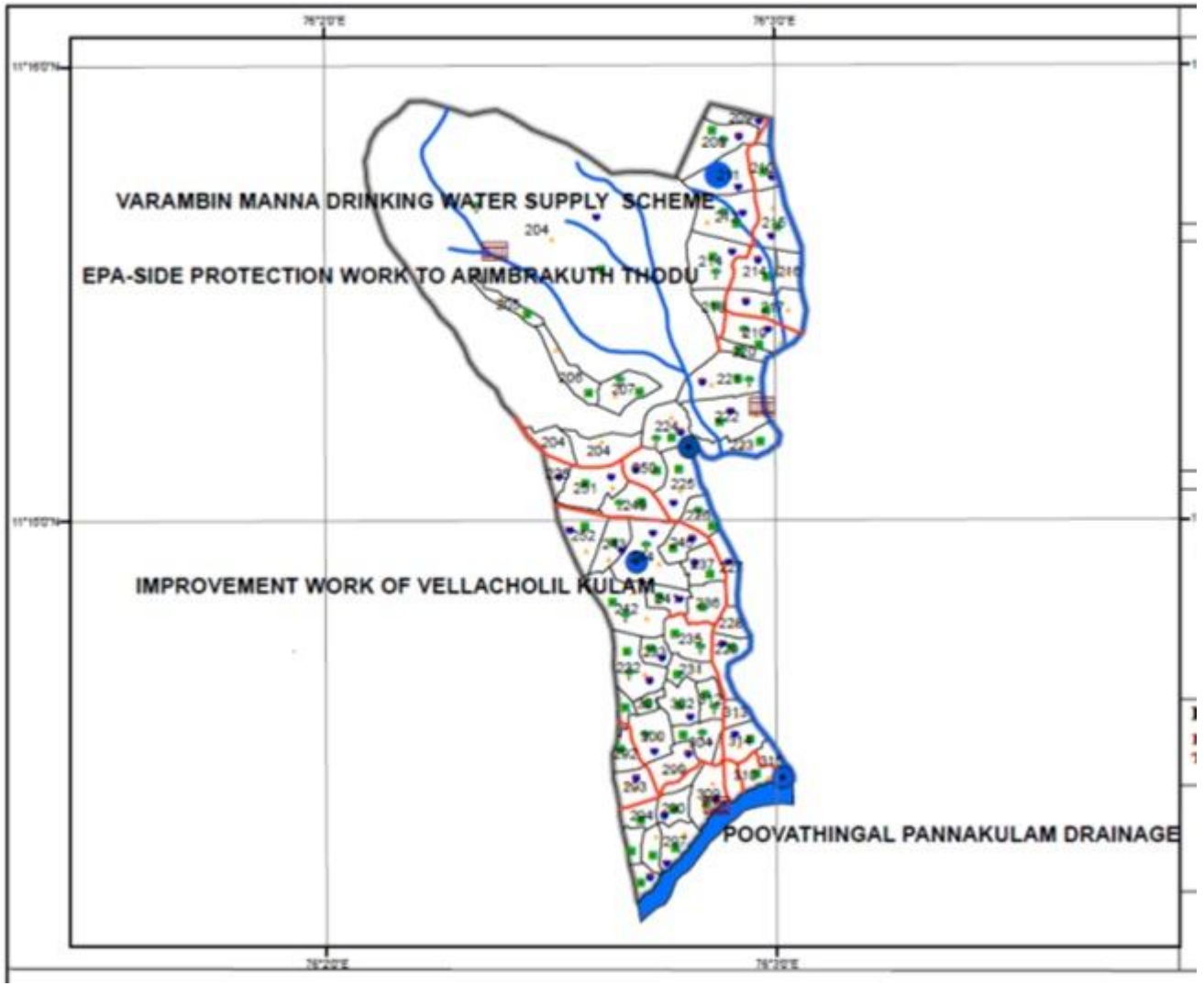
5. YEAR CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	265	X	15000
	%		
FIRST YEAR	2		79500
SECOND YEAR	1.5		59625
THIRD YEAR	1		39750
FOURTH YEAR	0.5		19875
			198750

6. ANNUAL ACTION PLAN

Total treatable area – 265Total amount - 265X 15000/ HA = 3975000

YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	79500	7950	3975	159000	79500	39750	636000	107325	79500	0	1192500
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	99375	9937.5	9937.5	0	79500	0	596250	71550	119250	0	985800
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	99375	9937.5	9937.5	0	39750	0	596250	107325	119250	0	981825
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	119250	11925	15900	0	0	0	397500	71550	79500	119250	814875
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	397500	39750	39750	159000	198750	39750	2226000	357750	397500	119250	3975000
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


VARAMBIN MANNA DRINKING WATER SUPPLY SCHEME
EPA-SIDE PROTECTION WORK TO ARIMBRAKUTH THODU
IMPROVEMENT WORK OF VELLACHOLIL KULAM
POOVATHINGAL PANNAKULAM DRAINAGE

AREACODE-24C64a

LOCATION AND EXTENT

This watershed is located in Areacode Grama Panchayath, Areacode block Panchayath of Malappuram district. The total area of the watershed is 539 hectares bearing the code of 24 C 64a.This watershed is comprised of the wards 4,5,6,7,8,9,10 completely and 5% of ward 11 and 15 respectively. The boundaries of the watershed are North Chaliyar river, South Kavanur, East Chaliyar and West Kozhakotur ITI.

1. PROBLEMS

1.1AGRICULTURAL SECTOR:

1. Lack of irrigation facilities
2. Scarcity of labourers
3. Lack of bio fertilizers
4. Pest attack on coconut trees
5. Lack of inter crop cultivation

1.2ANIMAL PRODUCTION SECTOR

1. Lack of high yielding cattle
2. Lack of proper fodder
3. Lack of pasture lands

1.3 SOIL AND WATER PRESERVATION SECTOR

1. Soil erosion from places of higher altitude
2. Fall of side walls of streams and canals which check the flow of water
3. Accumulation of soil in water resources that lead to lack of preservation of water

1.4 ENVIRONMENT SECTOR

1. Land and water reservoirs being polluted by plastic and other waste materials
2. Ignorance of proper waste eradication methods
3. Water reservoirs and pure water facilities being made impure

1. ENTRY POINT ACTIVITIES

EPA	Amount	Survey No
Construction of Compound wall in Puthalam GMLP School	**297000**	**504/6,23**

In Areacode watershed the EPA work is Construction of compound wall in Puthalam G.U.P School in Areacode Grama Panchayath

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

2.1 ACTIVITY WISE SUMMARY OF AREA TREATMENT - NATURAL RESOURCE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	WDF/BENIFICARY AMOUNT/UNIT	IWMP SHARE	WDF/BENIFICARY SHARE
1	Soak pit	Nos.	150	1299		1169.1	129.9	175365	19485
2	Water recharging	Nos	179	5000		4500	500	805500	89500
3	Rain water harvesting tank	Nos.	1	85000		76500	8500	76500	8500
4	Paddy field bund	Cum.	2002	61.83		55.647	6.183	111405	12378
5	Centripetal terracing	Nos	8000	0	MNREGS	0	0	0	0
6	mulching	Nos.	2000	0	MNREGS	0	0	0	0
7	Earthen Contour Bund	m	7000	61.83		55.647	6.183	389529	43281
8	Water Absorption Pits	Nos.	500	104		93.6	10.4	46800	5200
9	Horticulture Development	Nos.	3500	60		54	6	189000	21000
10	Stone pitched bund	m	2995	143.52		129.168	14.352	386858	42984
11	Agro-Forestry	Nos.	5002	40		36	4	180072	20008
12	Live Fencing	m	2000	20	MNREGS	0	0	0	0
13	Biogas	Nos.	5	24000		21600	2400	108000	12000
14	Arecanut Basin	Nos.	3000		MNREGS	0	0	0	0
15	Biogas in schools	Nos	2	45000		40500	4500	81000	9000
	Total							**2550029**	
	General works							**1607971**	
	Grant total							**4158000**	

2.2 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	CONVERGENCE	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	ALOTTIPARA THODU	170	0.5	1.5	1519	PRI/MI	258230	232407	25823
2	CHAPPANGATHOTTAM THEDA THODU	156	0.5	1.5	1519	PRI/MI	236964	213267.6	23696.4
3	KODAPATHUR THODU	190	0.5	1.5	1519	PRI/MI	288610	259749	28861
	Total						**783804**	**705423.6**	**78,380**

2.3DETAILS OF SIDE PROTECTION WORKS USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	BENIFICIARY SHARE/WDF
1	ALOTTIPARA THODU	40	0.5	1.5	639	25560	23004	2556
2	CHAPPANGATHOTTAM THEDA THODU	45	0.5	1.5	639	28755	25879.5	2875.5
3	KODAPATHUR THODU	60	0.5	1.5	639	38340	34506	3834
	Total					**92655**	**83390**	**9,266**

2.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	WDF/BENIFICARY SHARE
1	ALOTTIPARA THODU	24	1	0.5	12	111.6	1339.2	1205.28	133.92
2	CHAPPANGATHOTTAM THEDA THODU	27	1	0.5	13.5	111.6	1506.6	1355.94	150.66
3	KODAPATHUR THODU	40	1	0.5	20	111.6	2232	2008.8	223.2
	Total						**5,078**	**4,570**	**508**

2.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	RATE/m	TOTAL AMOUNT	IWMP SHARE	WDF/BENIFICARY SHARE
1	ALOTTIPARA THODU	120	20	2400	2160	240
2	CHAPPANGATHOTTAM THEDA THODU	95	20	1900	1710	190
3	KODAPATHUR THODU	180	20	3600	3240	360
	Total	-	-	**7,900**	**7,110**	**790**

2.6 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	CONVERGENCE	IWMP SHARE	WDF/BENIFICARY SHARE
2	THAZHATHANGADIWELL REPAIR	30,000	PRI/MI	27,000	3,000
3	URAVUMKUNDU POND CONSTRUCTION	400000	PRI/MI	3,60,000	40,000
4	EENTHUMKUNDU POND CONSTRUCTION	400000	PRI/MI	3,60,000	40,000
5	PULIKAL SCHOOL COMPOUND WALL	67,198	PRI/MI	60,478	6,720
	Total			**8,07,478**	**89,720**

3. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence, a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	8	30000/Ha		27,000	3,000	**216000**	**24000**	**240000**
2	Tuber crops	8	25000/Ha		22,500	2,500	**180000**	**20000**	**200000**
3	Banana cultivation	1900	15/seedling		13.5	1.5	**25650**	**2850**	**28500**
4	Fodder Crops	4	30000/Ha		27,000	3,000	**108000**	**12000**	**120000**
5	Vegetable garden	473	500/unit		450	50	**212850**	**23650**	**236500**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**742500**	**82500**	**825000**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

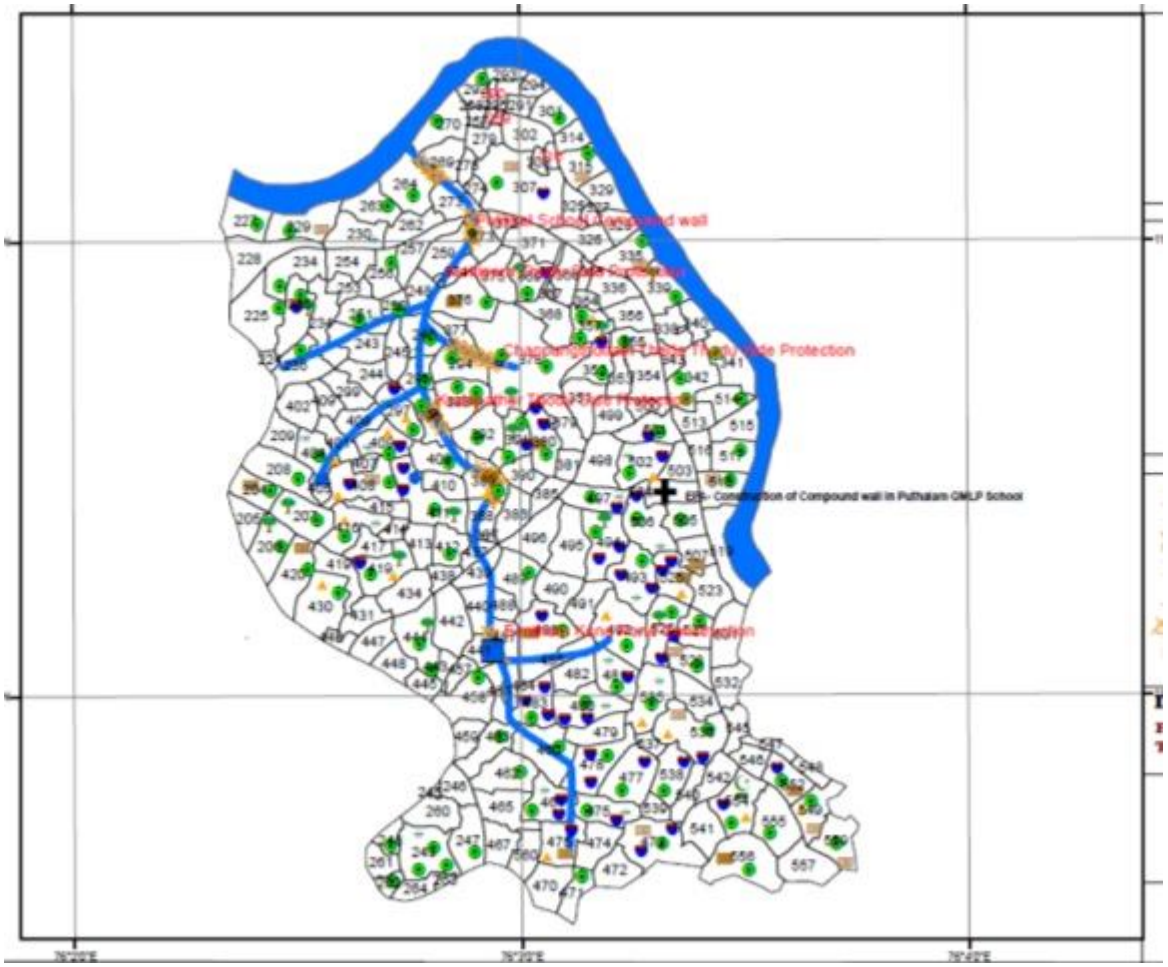
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT (Beneficiary)	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	81	**800**	**720**	**80**	**64800**	**58320**	**6480**
Dairy	6	**50,875**	**45787.5**	**5087.5**	**305250**	**274725**	**30525**
Tailoring units	5	**10,000**	**9000**	**1000**	**50000**	**45000**	**5000**
Goat Rearing	6	**17,800**	**16020**	**1780**	**106800**	**96120**	**10680**
Mushroom	7	**8,000**	**7200**	**800**	**56000**	**50400**	**5600**
Food processing	5	**25,000**	**22500**	**2500**	**125000**	**112500**	**12500**
Apiculture	7	**5000**	**4500**	**500**	**35000**	**31500**	**3500**
Rounded figure					**-350**	**-315**	**-35**
Total					742500	**668250**	74250

5. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	495	X	15000
			(4%)371250
	%		
FIRST YEAR	2		148500
SECOND YEAR	1.5		111375
THIRD YEAR	1		74250
FOURTH YEAR	0.5		37125

6. ANNUAL ACTION PLAN

Total treatable area - 495 Total amount - 495X 15000/ HA = 7425000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	148500	14850	7425	297000	148500	74250	1188000	200475	148500	0	2227500
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	185625	18562.5	18562.5	0	148500	0	1113750	133650	222750	0	1841400
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	185625	18562.5	18562.5	0	74250	0	1113750	200475	222750	0	1833975
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	222750	22275	29700	0	0	0	742500	133650	148500	222750	1522125
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	**742500**	**74250**	**74250**	**297000**	**371250**	**74250**	**4158000**	**668250**	**742500**	**222750**	**7425000**
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Protection
Construction of Compound wall in Puthalam GMLP School

UGRAPURAM-24C65a

LOCATION AND EXTENT

This watershed is located in Areacode Grama Panchayath, Areacode block of the Malappuram districts comprises of the first ,second and third wards completely and 30% 0f ward 17, 10% of ward 16.The river valley of this watershed extends to a total area of 327 hectare bearing the code 24C65a. The watershed area is situated between 11^0 13'3" N and 11^o 14' 30"North latitude and between76^o1'0" and 76^o2'30" in the east longitude. The boundaries of the watershed are north Chaliyar river, South Pookoduchola, East Perumparambu ITI and West Kariparambu and Manjapatta mosque

1. ENTRY POINT ACTIVITIES

In Ugrapuram watershed the EPA work is Improvement work of two ponds ie Vellanikkad Pond and Alukkal padam pond in Areacode Grama Panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents

Watershed	Improvement Work	Amount	**Survey No**
Ugrapuram	**Vellanikkad Pond**		**174/5**
	AlungalPadamkulam	**196200**	**69/1**

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area

2.1 ACTIVITY WISE SUMMARY OF AREA TREATMENT -NATURAL RESOURCE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT	IWMP SHARE	BENIFICARY SHARE
1	Soak pit	Nos.	110	1299		1169	130	128601	14289
2	Water recharging	Nos	63	5000		4500	500	283500	31500
3	Rain water harvesting tank	Nos.	1	85000		76500	8500	76500	8500
4	Paddy field bund	Cum.	5000	61.83		56	6	278235	30915
5	Centripetal terracing	Nos	6630	0	MNREGS	0	0	0	0
6	mulching	Nos.	3500	0	MNREGS	0	0	0	0
7	Earthen Contour Bund	m	7014	61.83		56	6	390308	43368
8	Water Absorption Pits	Nos.	500	104		94	10	46800	5200
9	Horticulture Development	Nos.	2000	60		54	6	108000	12000
10	Stone pitched bund	m	1600	143.52		129	14	206669	22963
11	Agro-Forestry	Nos.	3100	40		36	4	111600	12400
12	Live Fencing	m	6000	20	MNREGS	0	0	0	0
13	Biogas	Nos.	3	24000		21600	2400	64800	7200
14	Arecanut Basin		2000		MNREGS	0	0	0	0
15	Biogas in schools	Nos	2	45000		40500	4500	81000	9000
	Total							**1776013**	
	General works							**970787**	
	Grant total							**2746800**	

2.2 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT (IWMP)	IWMP SHARE	BENIFICARY SHARE/WDF
1	CHEEKULAM THODU	100	1	2	1519	151900	136710	15190
2	VELIPARAMBU THODU	110	1	2	1519	167090	150381	16709
3	ARINCHEERI THODU	104	1	2	1519	157976	142178	15798
4	KEEZHANCHERI KADAVU THODU	110	1	2	1519	167090	150381	16709
5	KEEZHANCHERI KADAVU THODU	150	1	2	1519	227850	205065	22785
	Total					**871906**	**784715**	**87191**

2.3 DETAILS OF SIDE PROTECTION WORKS USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT (IWMP)	IWMP SHARE	BENIFICARY SHARE/WDF
1	VELIPARAMBU THODU	35	1	2	639	22365	20129	2237
2	ARINCHEERI THODU	25	1	2	639	15975	14378	1598
3	KEEZHANCHERI KADAVU THODU	25	1	2	639	15975	14378	1598
	Total					**54315**	**48884**	**5432**

2.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT (IWMP)	IWMP SHARE	BENIFICARY SHARE/WDF
1	CHEEKULAM THODU	20	1.00	0.5	10	111.6	1116.0	1004.4	111.6
2	VELIPARAMBU THODU	10	1.20	0.5	6	111.6	669.6	602.6	67.0
3	ARINCHEERI THODU	15	1.20	0.5	9	111.6	1004.4	904.0	100.4
4	KEEZHANCHERI KADAVU THODU	25	1.20	0.5	15	111.6	1674.0	1506.6	167.4
							4464	**4018**	**446**

2.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	RATE/m	TOTAL AMOUNT (IWMP)	IWMP SHARE	BENIFICARY SHARE/WDF
1	CHEEKULAM THODU	40	20	800	720	80
2	VELIPARAMBU THODU	100	20	2000	1800	200
3	ARINCHEERI THODU	80	20	1600	1440	160
4	KEEZHANCHERI KADAVU THODU	74	20	1480	1332	148
	Total			**5880**	**5292**	**588**

2.6 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	CONVERGENCE	IWMP SHARE	BENIFICARY SHARE WDF
1	CHEEKULAM POND REPAIR	62087	PRI/MI	55878	6209
2	UGRAPURAM PUBLIC WELL REPAIR	30000	PRI/MI	27000	3000
3	MOOZHIPADAM POND	50000	PRI/MI	45000	5000
	Total			**127878**	**14209**

3. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence , a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

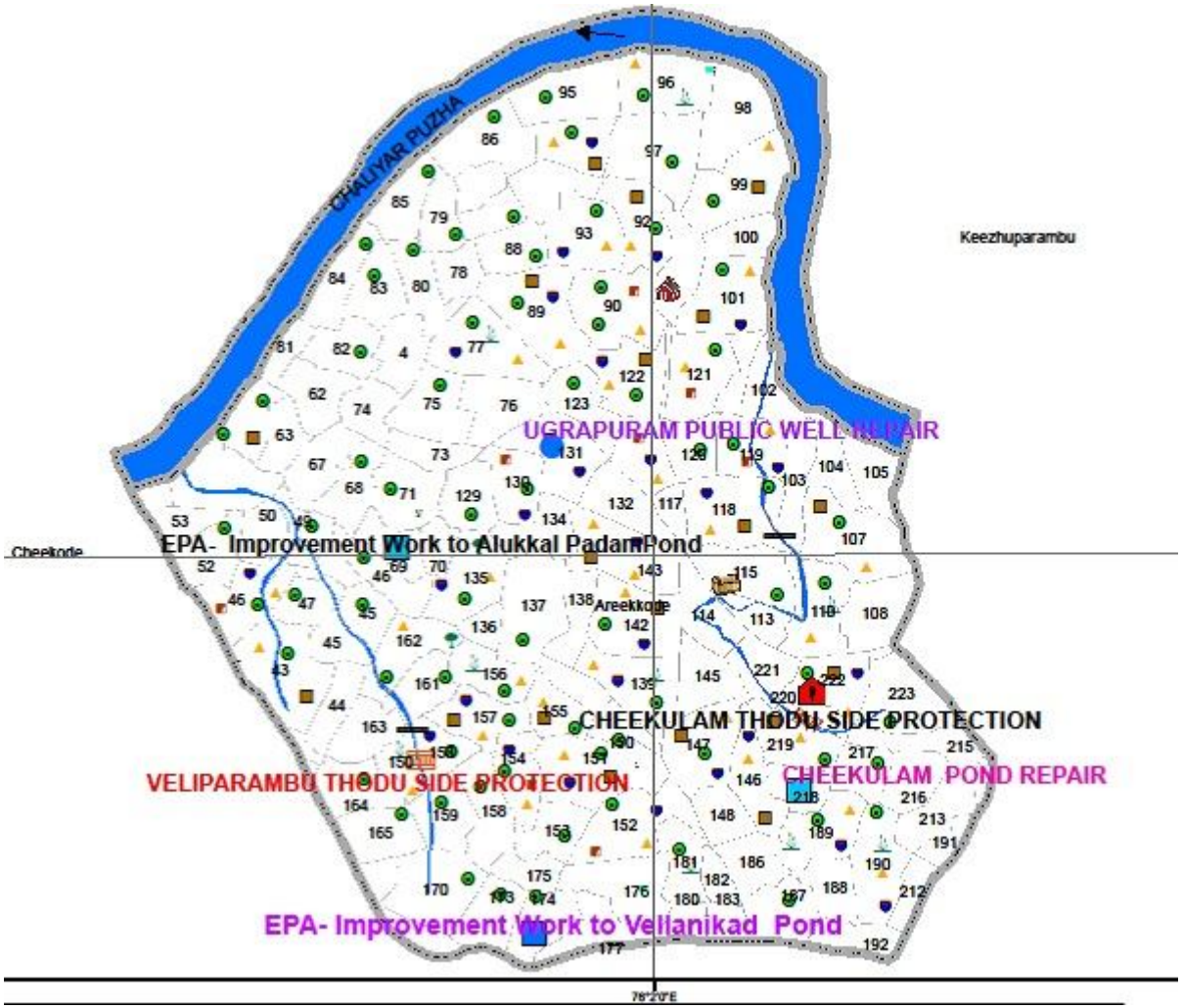
Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Bene-contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	5	30000/Ha		27,000	3,000	**135000**	**15000**	**150000**
2	Tuber crops	5	25000/Ha		22,500	2,500	**112500**	**12500**	**125000**
3	Banana cultivation	1500	15/seedling		13.5	1.5	**20250**	**2250**	**22500**
4	Fodder Crops	3	30000/Ha		27,000	3,000	**81000**	**9000**	**90000**
5	Vegetable garden	315	500/unit		450	50	**141750**	**15750**	**157500**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**490500**	**54500**	**545000**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT (Beneficiary)	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	81	**800**	**720**	**80**	**64800**	**58320**	**6480**
Dairy	4	**50,875**	**45787.5**	**5087.5**	**203500**	**183150**	**20350**
Tailoring units	5	**10,000**	**9000**	**1000**	**50000**	**45000**	**5000**
Goat Rearing	3	**17,800**	**16020**	**1780**	**53400**	**48060**	**5340**
Mushroom	3	**8,000**	**7200**	**800**	**24000**	**21600**	**2400**
Food processing	3	**25,000**	**22500**	**2500**	**75000**	**67500**	**7500**
Apiculture	4	**5000**	**4500**	**500**	**20000**	**18000**	**2000**
Rounded figure					**-200**	**-180**	**-20**
Total					490500	**441450**	49050

Total treatable area - 327 Total amount - 327X 15000/ HA = 4905000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	98100	9810	4905	196200	98100	49050	784800	132435	98100	0	1471500
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	122625	12262.5	12262.5	0	98100	0	735750	88290	147150	0	1216440
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	122625	12262.5	12262.5	0	49050	0	735750	132435	147150	0	1211535
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	147150	14715	19620	0	0	0	490500	88290	98100	147150	1005525
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	**490500**	**49050**	**49050**	**196200**	**245250**	**49050**	**2746800**	**441450**	**490500**	**147150**	**4905000**
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


CHALIYAR PUZHA
Keezhuparambu
UGRAPURAM PUBLIC WELL REPAIR
EPA- Improvement Work to Alukkal Padam Pond
Cheekode
Areekkode
CHEEKULAM THODU SIDE PROTECTION
VELIPARAMBU THODU SIDE PROTECTION
CHEEKULAM POND REPAIR
EPA- Improvement Work to Vellanikad Pond
76°2'0"E

VALLAYIL CHEMBRAKATTUR-24C66a

LOCATION AND EXTENT

This watershed is located in Areacode Grama Panchayath, Areacode block of the Malappuram district. The watershed comprised of the wards 11, 12, 13, 14, 15, 16, 17&18 completely of the Areacode Grama Panchayath. The river valley of this watershed extends to a total area of 840 hectare bearing the code 24 C 66 a. The watershed area is situated between 11^0 12'0" N and 11^o 11' 14" North latitude and between76^o 0'30" and 76^0 3'30" in the east longitude. The Mundambra, South Chembaparambu ITI, East areas of govt ITI and West Kadungallur.

1. PROBLEMS

1.1AGRICULTURAL SECTOR:

6. Lack of irrigation facilities
7. Scarcity of labourers
8. Lack of bio fertilizers
9. Pest attack on coconut trees
10. Lack of inter crop cultivation

1.2ANIMAL PROTECTION SECTOR

4. Lack of high yielding cattle
5. Lack of proper fodder
6. Lack of pasture lands

1.3 SOIL AND WATER PRESERVATION SECTOR

4. Soil erosion from places of higher altitude
5. Fall of side walls of streams and canals which check the flow of water
6. Accumulation of soil in water resources that lead to lack of preservation of water

1.4 ENVIRONMENT SECTOR

4. Land and water reservoirs being polluted by plastic and other waste materials
5. Ignorance of proper waste eradication methods
6. Water reservoirs and pure water facilities being made impure

1. ENTRY POINT ACTIVITIES

In Vallayil chamrakattur watershed the EPA work is Improvement work of four ponds ie Kaithayil pond, Cheriyanath pond,Choyathala and Cheenikkara Pond in Areacode Grama panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents

Watershed	Improvement Work	Amount
Vallayil chamrakattur	**Kaithayil pond**	**504000**
	Cheriyath pond	
	Choyathala pond	
	Cheenikkara pond	

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

2.1 ACTIVITY WISE SUMMARY OF AREA TREATMENT- NATURAL RESOURSE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT	IWMP SHARE	BENIFICARY SHARE
1	Soak pit	Nos.	200	1299		1169.1	129.9	233820	25,980
2	Water recharging	Nos	388	5000		4500	500	1746000	1,94,000
3	Rain water harvesting tank	Nos.	1	85000		76500	8500	76500	8,500
4	Paddy field bund	Cum.	2700	61.83		55.647	6.183	150247	16,694
5	Centripetal terracing	Nos	3000	0	MNREGS	0	0	0	0
6	mulching	Nos.	7000	0	MNREGS	0	0	0	0
7	Earthen Contour Bund	nos	1020	61.83		55.647	6.183	56760	6,307
8	Water Absorption Pits	Nos.	900	104		93.6	10.4	84240	9,360
9	Horticulture Development	Nos.	5999	60		54	6	323946	35,994
10	Stone pitched bund	m	3200	143.52		129.168	14.352	413338	45,926
11	Agro-Forestry	Nos.	1997	40		36	4	71892	7,988
12	Live Fencing	m	4000	20	MNREGS	0	0	0	0
13	Biogas	Nos.	3	24000		21600	2400	64800	7,200
14	Arecanut Basin	Nos.	2000		MNREGS	0	0	0	0
15	Biogas in schools	Nos	2	45000		40500	4500	81000	9,000
	Total							**3302543**	
	General works							**3753457**	
	Grant total							**7056000**	

2.2 IMPROVEMENT WORK IN PUBLIC RESORVOIRS

SL. NO	NAME OF POND	LENGTH	WIDTH	DEPTH	DEPTH OF SILT	DESILTATION (m3)	COST FOR SILT REMOVAL	COST FOR BAILING OUT OF WATER	COST FOR REPAIR OR CONSTRUCTION OF RETAINING WALL	TOTAL COST	IWMP SHARE	BENIFICARY SHARE/wdf
1	PILATHOTAM	20	20	5	2	800	89280	4575	50000	143855	129469.5	14,385.50
2	PILATHOTAM PANJYATHU KULAM	10	10	4	2	200	22320	4575	50000	76895	69205.5	7,689.50
3	NABOOTH KULAM	30	20	5	2	1200	133920	4575	50000	188495	169645.5	18,849.50
4	MUNJAKOTTU KULAM	12	10	5	1.2	144	16070.4	4575	50000	70645.4	63580.86	7,064.54
5	CHOLAYIL KULAM	15	10	4	1.5	225	25110	4575	50000	79685	71716.5	7,968.50
6	MANNAN PUTHAN KULAM	10	8	4	1	80	8928	4575	50000	63503	57152.7	6,350.30
7	PERANNACHALIL POTHU KULAM	15	10	4	1	150	16740	4575	50000	71315	64183.5	7,131.50
8	CHOYITHALA KULAM	10	5	4	1	50	5580	4575	50000	60155	54139.5	6,015.50
9	PANDIKULAM	10	10	5	1	100	11160	4575	50000	65735	59161.5	6,573.50
	Total									**820283**	**738255**	**82,028**

2.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/wdf
1	MANGAT THODU	190	0.5	1.5	1519	288610	259749	28,861
2	CHMRAKATOOR VALAYIL THODU	260	0.5	1.5	1519	394940	355446	39,494
3	KATTICHOLAYIL	250	0.5	1.5	1519	379750	341775	37,975
4	MATHACODE THACHERATHU THOD	280	0.5	1.5	1519	425320	382788	42,532
5	SAMBRYA KUNDUKUZHITHOD	260	0.5	1.5	1519	394940	355446	39,494
6	PILLATHOTTATHIL THOD	255	0.5	1.5	1519	387345	348610.5	38,735
7	VALACHETTIYIL CHALIYAPADAM THOD	280	0.5	1.5	1519	425320	382788	42,532
	Total					**2696225**	**2426603**	**2,69,623**

2.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/wdf
1	MANGAT THODU	275	1	0.5	137.5	111.6	15345	13811	1535
2	CHMRAKATOOR VALAYIL THODU	350	2	0.5	350	111.6	39060	35154	3906
3	KATTICHOLAYIL	165	1	0.5	82.5	111.6	9207	8286	921
4	MATHACODE THACHERATHU THOD	600	2	0.75	900	111.6	100440	90396	10044
5	SAMBRYA KUNDUKUZHITHOD	360	2	0.75	540	111.6	60264	54238	6026
6	PILLATHOTTATHIL THOD	360	2	0.75	540	111.6	60264	54238	6026
7	VALACHETTIYIL CHALIYAPADAM THOD	350	1	0.5	175	111.6	19530	17577	1953
	Total						**304110**	**273699**	**30411**

2.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	WIDTH	QTY (m2)	RATE/m	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/wdf
1	MANGAT THODU	150	1	1	20	3000	2,700	300
2	CHMRAKATOOR VALAYIL THODU	250	2	1	20	5000	4,500	500
3	MATHACODE THACHERATHU THOD	500	2	2	20	10000	9,000	1000
4	SAMBRYA KUNDUKUZHITHOD	300	2	2	20	6000	5,400	600
5	PILLATHOTTATHIL THOD	200	2	2	20	4000	3,600	400
6	VALACHETTIYIL CHALIYAPADAM THOD	203	1	1	20	4060	3,654	406
	Total					**32060**	**28,854**	**3,206**

2.6 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	IWMP SHARE	BENIFICARY SHARE/wdf
1	CONSTRUCTION OF WELL IN VALLAYIL	1,58,914	1,43,023	15,891
2	CONSTRUCTION OF WELL IN POOKUDI	1,58,915	1,43,024	15,892
	Total		**2,86,046**	**31,783**

3. PRODUCTION SYSTEM MANGEMENT

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit-WDF	Beni contribution/unit	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	13	30000/Ha		27,000	3,000	**351000**	**39000**	**390000**
2	Tuber crops	12	25000/Ha		22,500	2,500	**270000**	**30000**	**300000**
3	Banana cultivation	2700	15/seedling		13.5	1.5	**36450**	**4050**	**40500**
4	Fodder Crops	11	30000/Ha		27,000	3,000	**297000**	**33000**	**330000**
5	Vegetable garden	679	500/unit		450	50	**305550**	**33950**	**339500**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**1260000**	**140000**	**1400000**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	148	**800**	**720**	**80**	**118400**	**106560**	**11840**
Dairy	12	**50,875**	**45787.5**	**5087.5**	**610500**	**549450**	**61050**
Tailoring units	10	**10,000**	**9000**	**1000**	**100000**	**90000**	**10000**
Goat Rearing	10	**17,800**	**16020**	**1780**	**178000**	**160200**	**17800**
Mushroom	6	**8,000**	**7200**	**800**	**48000**	**43200**	**4800**
Food processing	4	**25,000**	**22500**	**2500**	**100000**	**90000**	**10000**
Apiculture	21	**5000**	**4500**	**500**	**105000**	**94500**	**10500**
Rounded figure					**100**	**90**	**10**
Total					1260000	**1134000**	126000

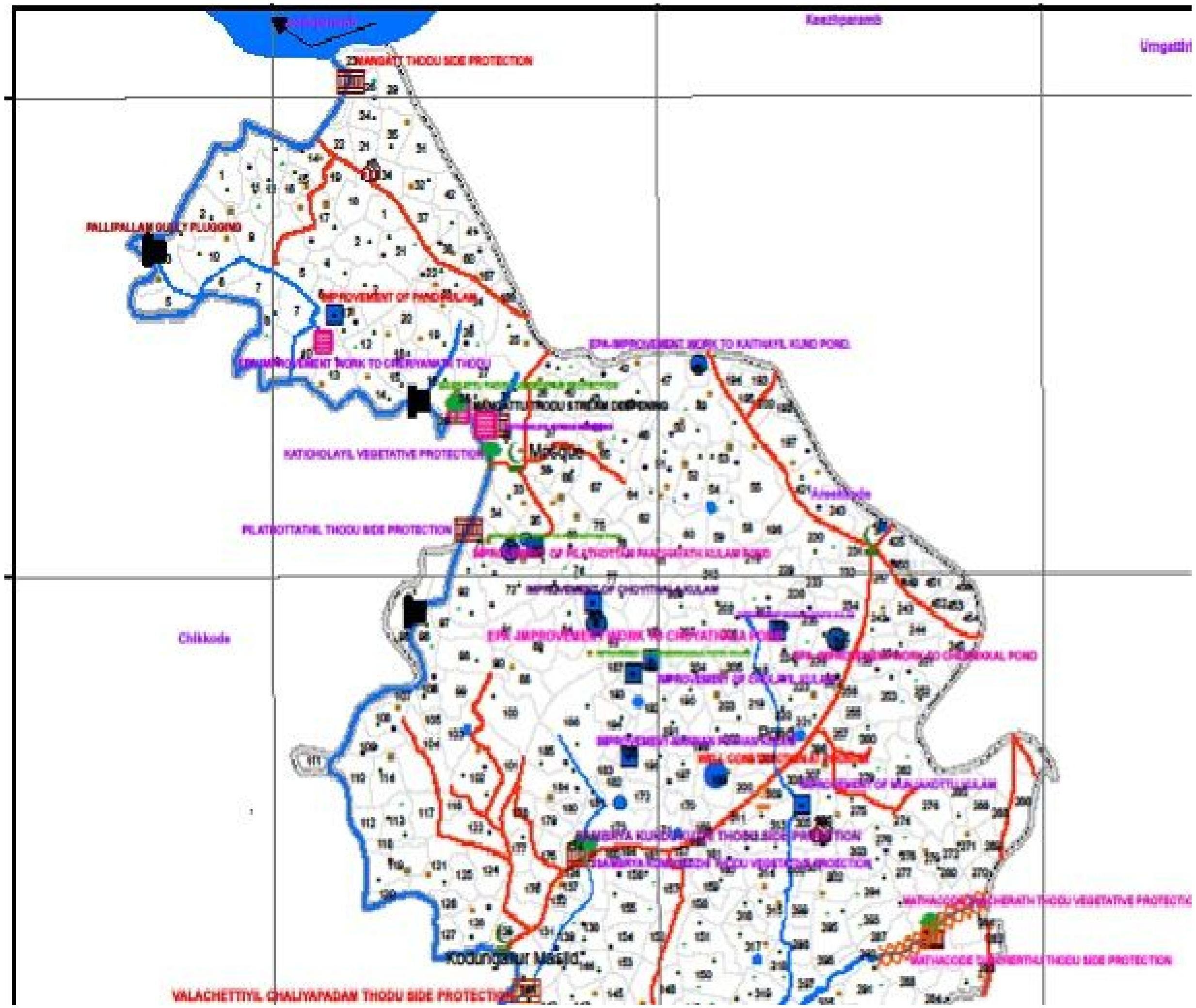
5. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING				
TOTAL AREA=	840	X	15000	
	%		630000	
FIRST YEAR	2		252000	
SECOND YEAR	1.5		189000	
THIRD YEAR	1		126000	
FOURTH YEAR	0.5		63000	

7. ANNUAL ACTION PLAN

Total treatable area - 840
Total amount - 840X 15000/ HA = 12600000

YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	252000	25200	12600	504000	252000	126000	2016000	340200	252000	0	3780000
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	315000	31500	31500	0	252000	0	1890000	226800	378000	0	3124800
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	315000	31500	31500	0	126000	0	1890000	340200	378000	0	3112200
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	378000	37800	50400	0	0	0	1260000	226800	252000	378000	2583000
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	1260000	126000	126000	504000	630000	126000	7056000	1134000	1260000	378000	12600000
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


PALLIPALLAM GULLY PLUGGING
Chikkode
VALACHETTIYIL CHALIYAPADAM THODU SIDE PROTECTION

ASHARITHODU-24C66b

LOCATION AND EXTENT

This watershed is located in Kavanur Grama Panchayath, Areacode block of the Malappuram district. It includes the wards 1-5 and 19 completely and 90% ward 12, 40% of ward 18 and 12% of 17 respectively In addition to this 20 % of the ward no 6 of Kuzhimanna Grama Panchayath The river valley of this watershed extends to a total area of 977 hectare bearing the code 24C66b. The watershed area is situated between 11^0 11'0" N and 11^o 12' 30"North latitude and between76^o2'0" and 76^o4'30" in the east longitude. The boundaries of the watershed are north Kilikkallu, Palanad Road, Aneri Mala, South Elayur Para, Meenchira, Muthannur Road, East Valiyathodi and West Asarithodu, Kuzhimanna Grama Panchayath.

1. PROBLEMS IN THE WATERSHED:-

1.1 Agricultural sector:

1. Lack of irrigation facilities
2. Lack of bio fertilizers
3. Inflation of chemical fertilizers
4. Scarcity of labourers
5. Ignorance about scientific agriculture
6. Pest attack on coconut trees
7. Hike in cost of productivity and lack of getting fair value for crops due to following the traditional agricultural methods

1.2Animal production sector:

1. Scarcity of hybrid cows and goats
2. Hike in price of cattle feed.
3. Lack of proper possibility for milk selling
4. Lack of scientific, modernized cowsheds

1.3Water and soil preservation sector:

1. Soil erosion from places like Cheerakuzhi mala, Kanhirakuzhimala
2. Canals and other water reservoirs are being filled with soil
3. Lack of water and soil preservation activities
4. Commonness of land filling and razing of earth
5. Water reservoirs being made impure by sewage disposal
6. Overuse of chemical fertilizers and insecticides

1. ENTRY POINT ACTIVITIES

In Asarithodu watershed the EPA work is Improvement work of two ponds i.e.Ittalingal, Kaitharapadam and Chatham pond in Kavanur Grama Panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents.

2. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

Watershed	Improvement Work	Amount
Asarithodu	**Ittalingal pond**	**5,85,600**
	Chatham pond	
	Kaitharapadam pond	

2.1. ACTIVITY WISE SUMMARY OF AREA TREATMENT - NATURAL RESOURSE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT/wdf	IWMP SHARE	BENIFICARY SHARE/wdf
1	Soakpit	Nos.	100	1299		1,169.10	129.9	116910.00	12990.00
2	Water recharging	Nos	133	5000		4,500.00	500	598500.00	66500.00
3	Rain water harvesting tank	Nos.	3	85000		76,500.00	8500	229500.00	25500.00
4	Paddy field bund	Cum.	8000	61.83		55.65	6.183	445176.00	49464.00
5	Centripetal terracing	Nos	25000	0	MNREGS	0.00	0	0.00	0.00
6	Mulching	Nos.	10000	0	MNREGS	0.00	0	0.00	0.00
7	Earthen Contour Bund	m	3023	61.83		55.65	6.183	168221.00	18691.00
8	Water Absorption Pits	Nos.	800	104		93.60	10.4	74880.00	8320.00
9	Horticulture Development	Nos.	8000	60		54.00	6	432000.00	48000.00
10	Stone pitched bund	m	6000	143.52		129.17	14.352	775008.00	86112.00
11	Agro-Forestry	Nos.	9000	40		36.00	4	324000.00	36000.00
12	Live Fencing	m	2000	20	MNREGS	0.00	0	0.00	0.00
13	Biogas	Nos.	2	24000		21,600.00	2400	43200.00	4800.00
14	Arecanut Basin	Nos.	6000		MNREGS	0.00	0	0.00	0.00
15	Biogas in schools	Nos	2	45000		40,500.00	4500	81000.00	9000.00
	Total							**3288395**	
	General works							**4910005**	
	Grant total							**8198400**	

2.2 IMPROVEMENT IN PUBLIC RESERVOIR

SL.NO	NAME OF POND	LENGTH	WIDTH	DEPTH	DEPTH OF SILT	WORK	DESILTATION (m3)	COST FOR SILT REMOVAL	COST FOR BAILING OUT OF WATER	COST FOR REPAIR WORKS	TOTAL COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	KUNDOOLY KULAM	10	10	3	0.5	DESILTATION	50	6415.00	4575.00	30,000	40990.00	36891.00	4099.00
2	CHENGARAM KULAM	20	10	1	0.5	DESILTATION	100	12830.00	4575.00	30,000	47405.00	42664.50	4740.50
3	VATTAPARA PANCHAYATH KULAM	10	8	3	0.75	DESILTATION	60	7698.00	4575.00	10,000	22273.00	20045.70	2227.30
4	PULIKAL KULAM	15.5	10	4.5	0.256	DESILTATION	39.68	5090.94	4575.00	0	9666	8699.35	966.59
	TOTAL											**108301**	**12033**

2.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	CONVERGENCE	IWMP SHARE	BENIFICARY SHARE/WDF
1	ASHARITHODU	568	0.5	1.5	1519	862792	PRI/MI	776512.80	86279.2
2	PAANAMPATTACHAL THODU	100	0.5	1.5	1519	151900	PRI/MI	136710.00	15190
3	CHELAPURAM KUNDALPADAM	110	0.5	1.5	1519	167090	PRI/MI	150381.00	16709
4	KAKKATHODU	150	0.5	1.5	1519	227850	PRI/MI	205065.00	22785
5	KUZHIMOOLI THODU	140	0.5	1.5	1519	212660	PRI/MI	191394.00	21266
6	VALLIKADU THODU	90	0.5	1.5	1519	136710	PRI/MI	123039.00	13671
7	VATTAPARAMBU AMBALAPADI THODU	100	0.5	1.5	1519	151900	PRI/MI	136710.00	15190
	TOTAL					1910902		**1719812**	**191090**

2.4 DETAILS OF SIDE PROTECTION USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	CHELAPURAM KUNDALPADAM	186	2	1	639	118854	106968.60	11885.40
	TOTAL					118854	**106968.60**	**11885.40**

2.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	QTY (m2)	RATE/m	TOTAL AMOUNT	CONVERGENCE
1	CHELAPURAM KUNDALPADAM	250	1	20	5,000	MGNREGS
	Total			-	**5,000**	-

2.6 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	CONVERGENCE	IWMP SHARE	BENIFICARY SHARE/WDF
1	ASARITHODU VCB	800,000.00	PRI/MI	720000	80,000
2	IMPROVEMENT WORKS TO MAYANKATHODI PADAM-SIDE PROTECTION	200,000.00	PRI/MI	180000	20,000
3	IMPROVEMENT WORKS TO VATTAPARAMBU KARIMKERA PADAM SIDE PROTECTION	325,000.00	PRI/MI	292500	32,500
4	IMPROVEMENT WORKS TO CHEMPANITHODU SIDE PROTECTION	100,000.00	PRI/MI	90000	10,000
5	CONSTRUCTION OF WELL IN KAKKAKUNNU	171,000.00	PRI/MI	153900	17,100
6	IMPROVEMENT WORKS OF VILAYIL KULAM THODU SIDE PROTECTION	211,500.00	PRI/MI	190350	21,150
7	DRINKING WATER SUPPLY SCHEME				
a	AKKARADANMUKKU	299,594.00	PRI/MI	269635	29,959
b	MANGATTUKANDI	299,594.00	PRI/MI	269635	29,959
c	KAKKAKUNNU	299,594.00	PRI/MI	269635	29,959
d	PALAKKOTTUPURAY	299,594.00	PRI/MI	269635	29,959
e	VALLIKKAD	299,595.00	PRI/MI	269636	29,960
	TOTAL	3,305,471.00		**2974924**	**330,547**

3. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence, a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	16	30000/Ha		27,000	3,000	**432000**	**48000**	**480000**
2	Tuber crops	16	25000/Ha		22,500	2,500	**360000**	**40000**	**400000**
3	Banana cultivation	2611	15/seedling		13.5	1.5	**35249**	**3917**	**39165**
4	Fodder Crops	13	30000/Ha		27,000	3,000	**351000**	**39000**	**390000**
5	Vegetable garden	635	500/unit		450	50	**285750**	**31750**	**317500**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure						**2**	**0**	**2**
	TOTAL AMOUNT						**1464000**	**162667**	**1626667**

4. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

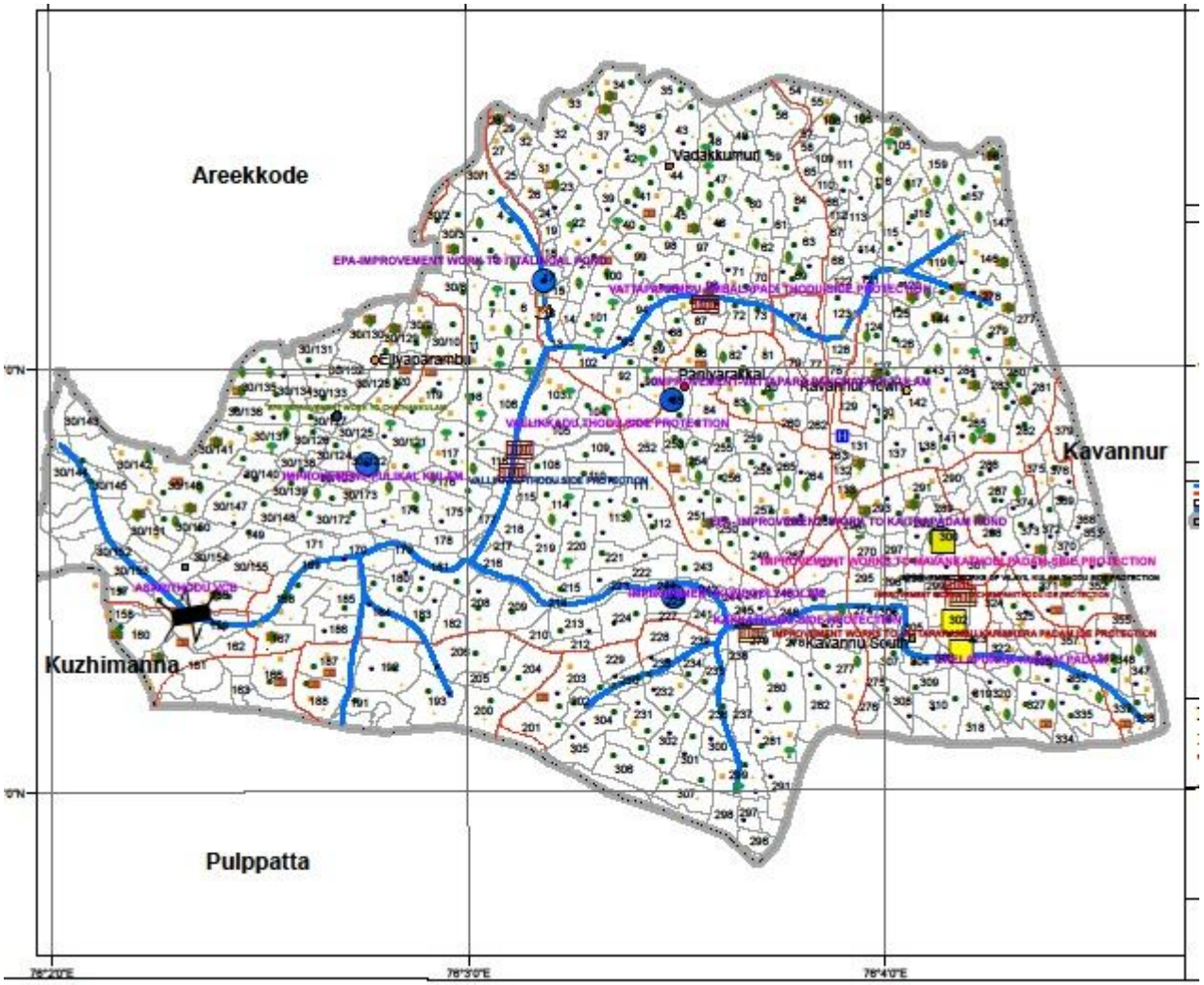
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT (Beneficiary)	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	147	**800**	**720**	**80**	**117600**	**105840**	**11760**
Dairy	15	**50,875**	**45787.5**	**5087.5**	**763125**	**686813**	**76313**
Tailoring units	15	**10,000**	**9000**	**1000**	**150000**	**135000**	**15000**
Goat Rearing	10	**17,800**	**16020**	**1780**	**178000**	**160200**	**17800**
Mushroom	10	**8,000**	**7200**	**800**	**80000**	**72000**	**8000**
Food processing	5	**25,000**	**22500**	**2500**	**125000**	**112500**	**12500**
Apiculture	10	**5000**	**4500**	**500**	**50000**	**45000**	**5000**
Rounded figure					**275**	**247**	**27**
Total					1464000	**1317600**	146400

5. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	976	X	15000
	%		(4%) 732000
FIRST YEAR	2		292800
SECOND YEAR	1.5		219600
THIRD YEAR	1		146400
FOURTH YEAR	0.5		73200

7. ANNUAL ACTION PLAN

Total treatable area - 976 Total amount - 976X 15000/ HA = 14640000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	292800	29280	14640	585600	292800	146400	2342400	395280	292800	0	4392000
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	366000	36600	36600	0	292800	0	2196000	263520	439200	0	3630720
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	366000	36600	36600	0	146400	0	2196000	395280	439200	0	3616080
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	439200	43920	58560	0	0	0	1464000	263520	292800	439200	3001200
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	**1464000**	**146400**	**146400**	**585600**	**732000**	**146400**	**8198400**	**1317600**	**1464000**	**439200**	**14640000**
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00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VILAYIL -24C66q

1. LOCATION AND EXTENT

The watershed is located in Muthuvallur and Kuzhimanna Grama Panchayats, Kondotty block of Malappuram district. This comprised of 7 and 8 wards completely and50% of ward 6. It also includes wards 5 and 7 of Kuzhimanna GramaPanchayath completely, 85 % of ward 6 and 30% of ward 4. It includes places like Hajiyarpadi, vilayilAngadi, Panattalungal, VilayilParappur, Parasseriparambu, Koronoyth, Mundamparambu, Akkaparambu, Chirapalam, Madathingal, and Kadungallur. This watershed extends to 939 hectare bearing the code 24C 66q and its river valley is Chaliyar. The watershed area is situated between 11^0 11'0" N and 11^o 12' 0"North latitude and between76^o0'0"E and 76^o2'3" in the east longitude.

2 ENTRY POINT ACTIVITIES

In Vilayil watershed the EPA work is Side protection to Koranothuvachal thodu in Muthuvallur Grama Panchayath, Biogas Plant at G.U.P.School Kadngalloor in Kuzhimanna Grama Panchayat, and other two the Rain water Harvesting System and Well recharging System to 25 Members in both Grama Panchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local resident

SIDE PROTECTION OF KORONOTH VACHAL THODU

This stream is flowing near the entrance of Hajiyar Padi-Vilayil road side of Muthuvallur Panchayath and is very much helpful to the farmers depends upon. Both sides of the thodu at the Koronoyth road side is seen damaged or non-protected. The side protection work will make more convenience to the farmers as well as the passengers.

BIOGAS PLANT AT G.U.P.SCHOOL, KADNGALLOOR

Kadungallur G.U.P.S is the one and only Govt. School in Kuzhimanna Grama Panchayath. More than 600nos. of student are studying in this School. The midday meal programme is implementing in this school. So a Biogas plant will more helpful to them for the purpose of fuel and as a remedy for waste management.

RAINWATER HARVESTING SYSTEM AT PEVUMTHOTTAM COLONY

The Pevumthottam SC colony of Kuzhimanna Grama Panchayath is experiencing severe water scarcity problems during the summer season. So the rain water harvesting system will help much better on facing this problem.

WELL RECHARGING SYSTEM

Both Muthuvallur and Kuzhimanna Panchayath are experiencing severe drinking water scarcity problems on each summer.

3. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

Watershed	Work	Amount
Vilayil	**Side protection to Koranothuvachalthodu**	**5,23,800**
	Biogas Plant at G.U.P.School,Kadngalloor	
	Rain water Harvesting System	
	Well recharging System (25 Members)	

3.1 ACTIVITY WISE SUMMARY OF AREA TREATMENT-NATURAL RESOURSE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	WDF-BENIFICARY AMOUNT/UNIT	IWMP SHARE	WDF-BENIFICARY SHARE
1	Soak pit	Nos.	150	1299		1169.1	129.9	175365	19485
2	Water recharging	Nos	185	5000		4500	500	832500	92500
3	Rain water harvesting tank	Nos.	2	85000		76500	8500	153000	17000
4	Paddy field bund	Cum.	3478	61.83		55.647	6.183	193540	21504
5	Centripetal terracing	Nos	15000	0	MGNREGS	0	0	0	0
6	Mulching	Nos.	8000	0	MGNREGS	0	0	0	0
7	Earthen Contour Bund	m	4500	61.83		55.647	6.183	250412	27824
8	Water Absorption Pits	Nos.	800	104		93.6	10.4	74880	8320
9	Horticulture Development	Nos.	7000	60		54	6	378000	42000
10	Stone pitched bund	m	4500	143.52		129.168	14.352	581256	64584
11	Agro-Forestry	Nos.	7999	40		36	4	287964	31996
12	Live Fencing	m	15000	20	MGNREGS	0	0	0	0
13	Biogas	Nos.	5	24000		21600	2400	108000	12000
14	Arecanut Basin	Nos.	5000		MGNREGS	0	0	0	0
15	Biogas in schools	Nos	2	45000		40500	4500	81000	9000
	Total							**3115917**	
	General works							**4217283**	
	Grant total							**7333200**	

3.2 IMPROVEMENT WORK IN PUBLIC RESORVOIRS

SL. NO	NAME OF POND	LENGTH	WIDTH	DEPTH	DEPTH OF SILT	WORK	DESILTATION (m3)	COST FOR SILT REMOVAL	COST FOR BAILING OUT OF WATER	COST FOR REPAIR WORKS	TOTAL COST	IWMP SHARE	BENIFICARY SHARE/WDF
1	THIRUVACHOLA KULAM	6	5	1.75	0.5	DESILTATION	15	1674	4575	15000	21249	19124.1	2124.9
2	CHOLAYIL KULAM	4	3	2.5	0.5	DESILTATION	6	669.6	4575	10000	15244.6	13720.14	1524.46
3	NEERMANGATTU KULAM	20	18	4	0.75	DESILTATION	270	30132	4575	10000	44707	40236.3	4470.7
4	KOZHUKAR POND	15	15	3	0.75	DESILTATION	168.75	18833	4575	0	23407.5	21066.75	2340.75
	Total										**104,608**	**94,147**	**10,461**

3.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	CONVERGENCE	IWMP SHARE	BENIFICARY SHARE/WDF
1	KORONOTH VACHAL	120	0.5	2.4	4006	480720	PRI/MI	432648	48072
2	KADUNGALLUR VALIYA THODU	125	0.5	2.4	4006	500750	PRI/MI	450675	50075
3	EDALATH MOOYIPADAM	125	0.5		1519	189875	PRI/MI	170887.5	18987.5
4	KARIMPANACHIRA MUNDOOZHI THODU	150	0.5	1.5	1519	227850	PRI/MI	205065	22785
5	AKKARACHOLA MOONUDI	145	0.5	1.5	1519	220255	PRI/MI	198229.5	22025.5
6	MAMBRA CHOLA	160	0.5	1.5	1519	243040	PRI/MI	218736	24304
7	KANNAMANGALAM KONOTH	150	0.5	1.5	1519	227850	PRI/MI	205065	22785
8	PANAKKACHAL THODU	160	0.5	1.5	1519	243040	PRI/MI	218736	24304
9	PARAMMAL MANNARAKKAL THODU	130	0.5	1.5	1519	197470	PRI/MI	177723	19747
10	CHIRAPALAM CHERIYA THODU	120	0.5	1.5	1519	182280	PRI/MI	164052	18228
11	THOTTUCHALI THODU	120	0.5	1.5	1519	182280	PRI/MI	164052	18228
	Total					**2,895,410**		**2,605,869**	**289541**

3.4 DETAILS OF SIDE PROTECTION WORKS USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	IWMP SHARE	WDF/BENIFICARY SHARE
1	KORONOTH VACHAL	80	3	2.5	639.00	51120.00	46008.00	5112.00
2	EDALATH MOOYIPADAM	60	0.5	1	639.00	38340.00	34506.00	3834.00
3	KARIMPANACHIRA MUNDOOZHI THODU	70	2	1.5	639.00	44730.00	40257.00	4473.00
4	AKKARACHOLA MOONUDI	70	1.5	0.75	639.00	44730.00	40257.00	4473.00
5	MAMBRA CHOLA	60	2	1.5	639.00	38340.00	34506.00	3834.00
6	KANNAMANGALAM KONOTH	80	2	1.5	639.00	51120.00	46008.00	5112.00
	Total					**268380.0**	241542	**26838**

3.5 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	DEPTH	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	BENIFICARY SHARE/WDF
1	EDALATH MOOYIPADAM	30	0.5	0.2	3	111.6	335	301	33
2	KARIMPANACHIRA MUNDOOZHI THODU	300	2	0.5	300	111.6	33480	30132	3348
3	KADUNGALLUR VALIYA THODU	30	20	0.5	300	111.6	33480	30132	3348
4	PARAMMAL MANNARAKKAL THODU	74	1.5	0.5	55.5	111.6	6194	5574	619
5	CHIRAPALAM THODU	50	1.5	0.5	37.5	111.6	4185	3767	419
6	THOTTUCHALI THODU	100	0.8	0.5	40	111.6	4464	4018	446
	Total						**82138**	**73924**	**8214**

3.6 GEO TEXTILES

SL NO	NAME OF LOCATION	LENGTH	WIDTH	QTY (m2)	RATE/m2	TOTAL AMOUNT	CONVERGENCE	1WMP SHARE	BENIFICARY SHARE/WDF
1	KORONOTH VACHAL	500	3	1500	151	226500	PRI/MI	203850	22650
2	EDALATH MOOYIPADAM	150	0.5	75	151	11325	PRI/MI	10192.5	1132.5
3	KARIMPANACHIRA MUNDOOZHI THODU	150	2	300	151	45300	PRI/MI	40770	4530
4	MAMBRA CHOLA	500	2	1000	151	151000	PRI/MI	135900	15100
5	KANNAMANGALAM KONOTH	600	2	1200	151	181200	PRI/MI	163080	18120
	Total					**615,325**		**553792.5**	**61,532.50**

3.7 GENERAL WORKS

Sl No	NAME OF WORK	ESTIMATE COST (IWMP)	IWMP SHARE	WDF-BENIFICARY SHARE
1	CONSTRUCTION OF NEW WELL PEVUMTHOTTAM ANGANVADI	200,009	180,008	20,001
2	CONSTRUCTION OF NEW WELL PULIYAKODE ANGANVADI	200,000	180,000	20,000
3	CONSTRUCTION OF NEW WELL AT CHULLIKOTTUPARAMBIL SC COLONY	200,000	180,000	20,000
4	REPAIR OFMUNDAMPARAMBU ATHIKALODI PANCHAYATH WELL	30,000	27,000	3,000
5	REPAIR OF MUNDAMPARAMBU SCHOOL PADI WELL	30,000	27,000	3,000
6	REPAIR OF AKKAPARAMBU PUBLIC WELL	30,000	27,000	3,000
7	REPAIR OF PUNNATTUKUNNU COLONY WELL	30,000	27,000	3,000
	Total		**648,008**	**72,001**

4. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence, a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	13	30000/Ha		27,000	3,000	**351000**	**39000**	**390000**
2	Tuber crops	14	25000/Ha		22,500	2,500	**315000**	**35000**	**350000**
3	Banana cultivation	3000	15/seedling		13.5	1.5	**40500**	**4500**	**45000**
4	Fodder Crops	10	30000/Ha		27,000	3,000	**270000**	**30000**	**300000**
5	Vegetable garden	740	500/unit		450	50	**333000**	**37000**	**370000**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**1309500**	**145500**	**1455000**

5. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

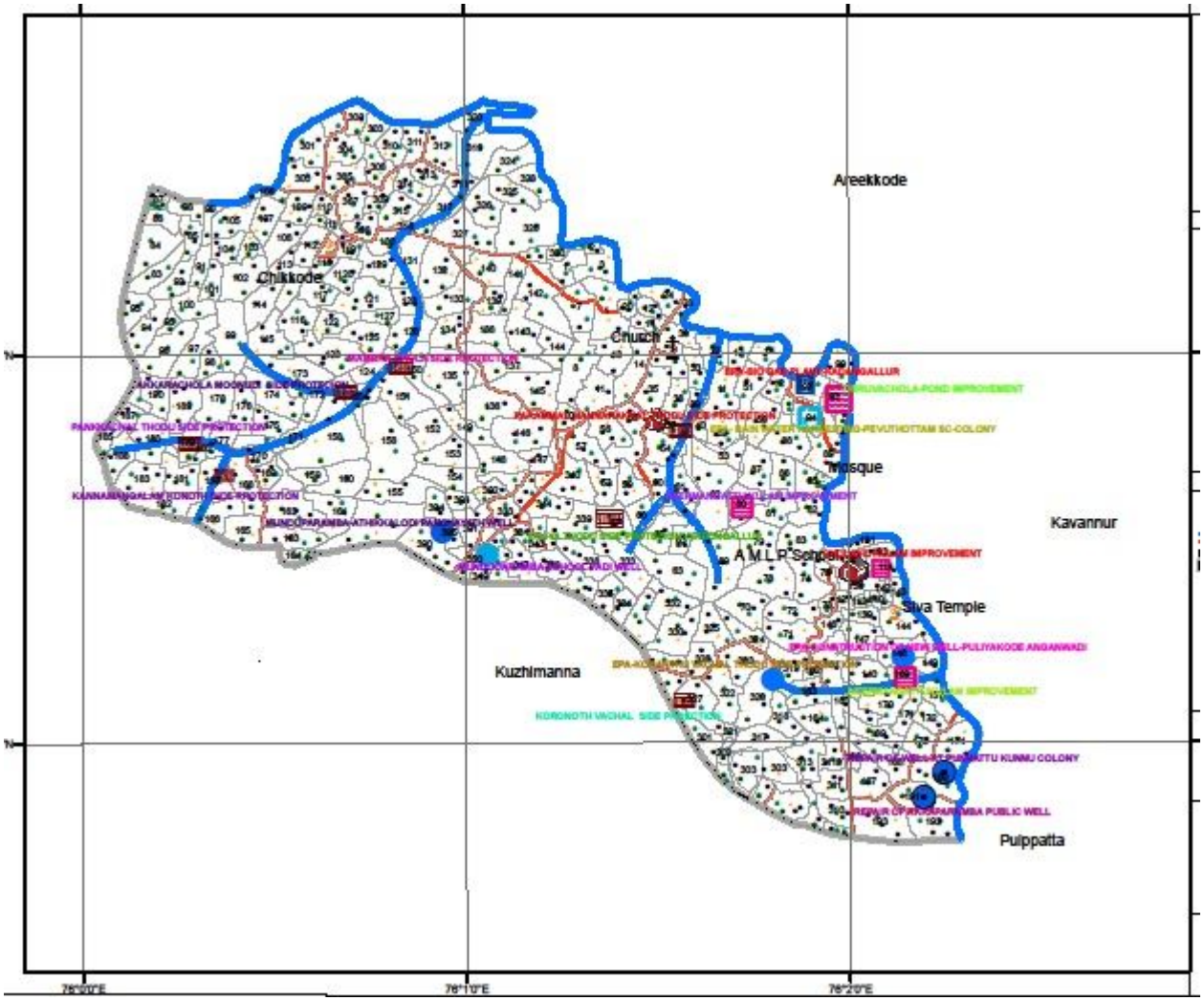
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	200	**800**	**720**	**80**	**160000**	**144000**	**16000**
Dairy	10	**50,875**	**45787.5**	**5087.5**	**508750**	**457875**	**50875**
Tailoring units	15	**10,000**	**9000**	**1000**	**150000**	**135000**	**15000**
Goat Rearing	20	**17,800**	**16020**	**1780**	**356000**	**320400**	**35600**
Mushroom	5	**8,000**	**7200**	**800**	**40000**	**36000**	**4000**
Food processing	2	**25,000**	**22500**	**2500**	**50000**	**45000**	**5000**
Apiculture	9	**5000**	**4500**	**500**	**45000**	**40500**	**4500**
Rounded figure					**-250**	**-225**	**-25**
Total					1309500	**1178550**	130950

6. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	873	X	15000
	%		654750
FIRST YEAR	2		261900
SECOND YEAR	1.5		196425
THIRD YEAR	1		130950
FOURTH YEAR	0.5		65475

7. ANNUAL ACTION PLAN

Total treatable area - 873 Total amount - 873X 15000/ HA = 13095000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	261900	26190	13095	523800	261900	130950	2095200	353565	261900	0	3928500
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	327375	32737.5	32737.5	0	261900	0	1964250	235710	392850	0	3247560
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	327375	32737.5	32737.5	0	130950	0	1964250	353565	392850	0	3234465
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	392850	39285	52380	0	0	0	1309500	235710	261900	392850	2684475
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	1309500	130950	130950	523800	654750	130950	7333200	1178550	1309500	392850	13095000
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Areekkode
Chikkode
Chuuch
Thosque
Kavannur
A M L P School
Siva Temple
Kuzhimanna
Pulppatta
76°0'0"E
76°1'0"E
76°2'0"E

POONKUDIPADAM-24C66r

1. LOCATION AND EXTENT Poomkudipadam watershed is located in Cheekkode Grama Panchayath, Areacode Block Panchayath of Malappuram district. It includes fifth ward completely and 10% of ward 3, 60 % of wards 4 and 35 % of ward 6 respectively. The total area of this watershed extends to 202 hectare bearing the code No 24C66r. The watershed area is situated between 11^0 13'0" N and 11^o 14' 0"North latitude and between76^o 30'0" and 76^o 1'30" in the east longitude. The boundaries of the watershed are north Alyamthadayikunnu, South Muthuvallur Grama Panchayath, East Poonkudithodu, Areacode and West Kottammelmala, Malaparambu Mala.

1. PROBLEMS

Soil erosion, Land filling, Dumping of waste in public places and water sources, Over use of Fertilizers, excess flow of water, Excess of sand Mining.

1.1 ANIMAL CONSERVATION SCENARIO

Problems faced

1. Lack of high yielding cattle
2. Lack of modernized slaughter house
3. Epidemic among Cattle
4. Huge investment for cattle farming
5. Lack of cattle feed and grass
6. Lack of modernized Cowshed

2 ENTRY POINT ACTIVITIES

In Poomkudipadam watershed the EPA work is the Canal construction work to Thazhekolakad in Cheekode Gramapanchayath. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, Arecanut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents.

Watershed	Work	Amount
Poonkudipadam	**Thazhekolakad canal construction**	**1,17,000**

3. NATURAL RESOURCEMANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

3.1 ACTIVITIES OF NATURAL RESOURCE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	WDF-BENIFICARY AMOUNT/UNIT	IWMP SHARE	WDF-BENIFICARY SHARE
1	Soak pit	Nos.	30	1299		1169.1	129.9	35073	3897
2	Water recharging	Nos	30	5000		4500	500	135000	15000
3	Rain water harvesting tank	Nos.	1	85000		76500	8500	76500	8500
4	Paddy field bund	Cum.	1350	61.83		55.647	6.183	75123	8347
5	Centripetal terracing	Nos	6000	0	MNREGS	0	0	0	0
6	Mulching	Nos.	1500	0	MNREGS	0	0	0	0
7	Earthen Contour Bund	m	1620	61.83		55.647	6.183	90148	10016
8	Water Absorption Pits	Nos.	200	104		93.6	10.4	18720	2080
9	Horticulture Development	Nos.	989	60		54	6	53406	5934
10	Stone pitched bund	m	1000	143.52		129.168	14.352	129168	14352
11	Agro-Forestry	Nos.	1001	40		36	4	36036	4004
12	Live Fencing	m	300	20	MNREGS	0	0	0	0
13	Biogas	Nos.	2	24000		21600	2400	43200	4800
14	Arecanut Basin	Nos.	2000		MNREGS	0	0	0	0
15	Biogas in schools	Nos	1	45000		40500	4500	40500	4500
	Total							**732874**	
	General works							**905126**	
	Grant total							**1638000**	

3.2DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	CONVERGENCE	IWMP SHARE	WDF-BENIFICARY SHARE
1	PARAKKULANGARA KUNITHALAKKADAVU	100	0.6	60	1519	151900	PRI/MI	136710	15190
2	POOTHULLI THODE	115	1	1	1519	174685	PRI/MI	157217	17469
3	POONKUDIPPADAM THODE	105	1	1	1519	159495	PRI/MI	143546	15950
4	CHUNDATH KANCHIRAMKODE THODE	150	0.8	0.8	1519	227850	PRI/MI	205065	22785
	Total					**713,930**		**642537**	**71,393**

3.3 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	WDF-BENIFICARY SHARE
1	PARAKKULANGARA KUNITHALAKKADAVU	95	0.6	0.5	28.5	111.6	3180.6	2862.54	318.06
2	POOTHULLI THODE	100	1	0.5	50	111.6	5580	5022	558
3	POONKUDIPPADAM THODE	125	1	0.25	31.25	111.6	3487.5	3138.75	348.75
4	CHUNDATH KANCHIRAMKODE THODE	110	0.8	0.75	66	111.6	7365.6	6629.04	736.56
	Total						**19,614**	**17,652**	**1,961**

3.4 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	IWMP SHARE	WDF-BENIFICARY SHARE
1	CHERAKKATHARA AGANVADI WELL	123576	111218	12358
2	PALAKUZHI WELL CONSTRUCTION	123576	111218	12358
3	ODANCHEELI KUNITHSALAKADAVU WELL REPAIR	25000	22500	2500
	Total		**244937**	**27,215**

4. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence , a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	2	30000/Ha		27,000	3,000	**54000**	**6000**	**60000**
2	Tuber crops	3	25000/Ha		22,500	2,500	**67500**	**7500**	**75000**
3	Banana cultivation	900	15/seedling		13.5	1.5	**12150**	**1350**	**13500**
4	Fodder Crops	2	30000/Ha		27,000	3,000	**54000**	**6000**	**60000**
5	Vegetable garden	233	500/unit		450	50	**104850**	**11650**	**116500**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**292500**	**32500**	**325000**

5. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

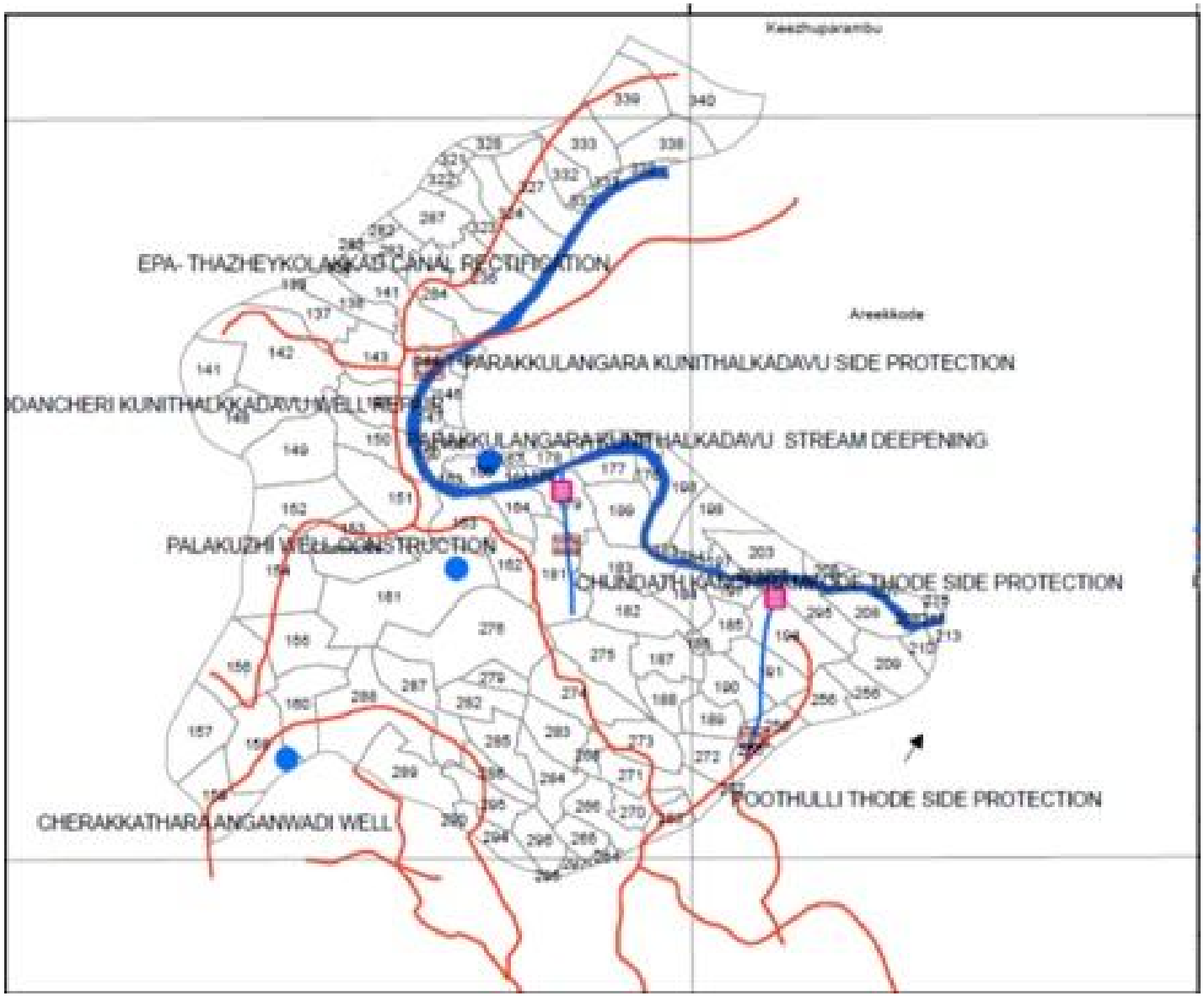
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	**159**	**800**	**720**	**80**	**127200**	**114480**	**12720**
Tailoring units	**3**	**10,000**	**9000**	**1000**	**30000**	**27000**	**3000**
Goat Rearing	**4**	**17,800**	**16020**	**1780**	**71200**	**64080**	**7120**
Mushroom	**3**	**8,000**	**7200**	**800**	**24000**	**21600**	**2400**
Food processing	**1**	**25,000**	**22500**	**2500**	**25000**	**22500**	**2500**
Apiculture	**3**	**5000**	**4500**	**500**	**15000**	**13500**	**1500**
Rounded figure					**100**	**90**	**10**
Total					292500	**263250**	29250

7. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	195	X	15000
	%		(4%)146250
FIRST YEAR	2		58500
SECOND YEAR	1.5		43875
THIRD YEAR	1		29250
FOURTH YEAR	0.5		14625

8- ANNUAL ACTION PLAN

Total treatable area - 195 Total amount - 195X 15000/ HA = 2925000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	58500	5850	2925	117000	58500	29250	468000	78975	58500	0	877500
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	73125	7312.5	7312.5	0	58500	0	438750	52650	87750	0	725400
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	73125	7312.5	7312.5	0	29250	0	438750	78975	87750	0	722475
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	87750	8775	11700	0	0	0	292500	52650	58500	87750	599625
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	**292500**	**29250**	**29250**	**117000**	**146250**	**29250**	**1638000**	**263250**	**292500**	**87750**	**2925000**
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Keezhuparambu
Areekkode
EPA- THAZHEYKOLAKKAD CANAL RECTIFICATION
PARAKKULANGARA KUNITHALKADAVU SIDE PROTECTION
PARAKKULANGARA KUNITHALKADAVU STREAM DEEPENING
PALAKUZHI
CHUNDATHUKA
THODE SIDE PROTECTION
POOTHULLI THODE SIDE PROTECTION
CHERAKKATHARA ANGANWADI WELL

CHALIYAR-24C67a

LOCATION AND EXTENT

This watershed is located in Cheekkode Grama Panchayath, Areacode block of the Malappuram district.Vavoorthode watershed is comprised of the 2nd ward of cheakode Grama Panchayath completely and 90% of 3rd ward, 20% of 8th ward, 40% 9th ward and 20% 10nt ward respectively. It also includes areas like Erattamkuzhi, Kallittappalam, Vavoor, Karimbil and Vettupara. This watershed extends up to 300 Ha with the code number is 24C67a.The watershed area is situated between 110 11'0" N and 11o 12' 30"North latitude and between76^{o}0'0" and 76o2'30" in the east longitude. The boundaries of the watershed are north Chaliyar, South Puthur Mala Valiya Mala, East Malaparambu mala and West Vavoor to cheekkode road.

1. PROBLEMS IN THE WATERSHED

1. Famine of Agricultural labours
2. Lack of bio-fertilizers
3. Over use of fertilizers.
4. Fields are kept barren
5. Lack of excellent seeds and planting methods.
6. Lack of interest in agriculture of the youth.
7. Drought
8. Lack of getting reasonable rates for products.
9. Lack of acidity in the soil.
10. Pest attacks of agriculture crops.
11. Natural calamities.
12. Soil erosion

1.1 ANIMAL CONSERVATION SCENARIO

Problem facing

1. Lack of high yielding cattle
2. Lack of modernized slaughter house
3. Epidemic among Cattle
4. Huge investment for cattle farming
5. Lack of cattle feed and grass
6. Lack of modernized Cowshed

2 ENTRY POINT ACTIVITIES

In Vavoorthodu watershed the EPA work is the Rectification of Canal for ChaliyarPadam Pondwork to Chalipadam in CheekodeGramapanchayath.

Watershed	Work	Amount	Survey No
Chaliyar(Vavoorthodu)	Rectification of Canal for ChaliyarPadam Pond	,80,000	293

3. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area

3.1 ACTIVITIES OF NATURAL RESOURCE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT/wdf	IWMP SHARE	BENIFICARY SHARE/wdf
1	Water recharging	Nos	20	5000		4500	500	90000	10000
2	Rain water harvesting tank	Nos.(1 lakh ltr.)	1	35000		31500	3500	31500	3500
3	Paddy field bund	Cum.	750	61.83		56	6	41735	4637
4	Centripetal terracing	Nos	12668	0	MGNREGS	0	0	0	0
5	mulching	Nos.	6000	0	MGNREGS	0	0	0	0
6	Earthen Contour Bund	m	7500	61.83		56	6	417353	46373
7	Water Absorption Pits	Nos.	500	104		94	10	46800	5200
8	Horticulture Development	Nos.	1025	60		54	6	55350	6150
9	Stone pitched bund	m	4658	143.52		129	14	601665	66852
10	Agro-Forestry	Nos.	1501	40		36	4	54036	6004
11	Live Fencing	m	1500	20	MGNREGS	0	0	0	0
12	Biogas	Nos.	1	24000		21600	2400	21600	2400
13	Arecanut Basin	Nos.	4000		MGNREGS	0	0	0	0
14	Biogas in schools	Nos	1	45000		40500	4500	40500	4500
	Total							**1400538**	
	General works							**1892262**	
	Grant total							**3292800**	

3.2 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT	CONVERGENCE	IWMP SHARE	WDF-BENIFICARY SHARE
1	PATTAKKAL MOOZHITHODE	115	0.5	2.4	4006	460690	PRI/MI	414621	46,069
2	KODALIL CHOLAKKAL	115	0.5	1.5	1519	174685	PRI/MI	157216.5	17,469
3	CHEAKODE	111	0.5	1.5	1519	168609	PRI/MI	151748.1	16,861
4	VETTUPPARA CHERUKUND THODE	130	0.5	1.5	1519	197470	PRI/MI	177723	19,747
	TOTAL					1001454		901309	100,145

3.3 DETAILS OF SIDE PROTECTION WORKS USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m3	CONVERGENCE	TOTAL AMOUNT	IWMP SHARE	WDF-BENIFICARY SHARE
1	PATTAKKAL MOOZHITHODE	42	0.5	1.5	639	PRI/MI	26,838	24,154.20	2684
2	KODALIL CHOLAKKAL	40	0.5	1.5	639	PRI/MI	25,560	23,004.00	2556
3	CHEAKODE	45	0.5	1.5	639	PRI/MI	28,755	25,879.50	2876
4	VETTUPPARA CHERUKUND THODE	60	0.5	1.5	639	PRI/MI	38,340	34,506.00	3834
	Total						**119,493**	**107,544**	**11,949**

3.4 STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT	IWMP SHARE	WDF-BENIFICARY SHARE
1	PATTAKKAL MOOZHITHODE	120	2.5	0.5	150	111.6	16740	15066	1674
2	KODALIL CHOLAKKAL	120	0.6	0.5	36	111.6	4017.6	3616	402
3	CHEAKODE	110	0.6	0.5	33	111.6	3682.8	3315	368
4	VETTUPPARA CHERUKUND THODE	120	0.7	0.5	42	111.6	4687.2	4218	469
	Total						**29,128**	**26,215**	**2,913**

3.5 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	RATE/m	TOTAL AMOUNT	IWMP SHARE	WDF-BENIFICARY SHARE
1	PATTAKKAL MOOZHITHODE	51	20	1020	918	102
2	KODALIL CHOLAKKAL	50	20	1000	900	100
3	CHEAKODE	30	20	600	540	60
4	VETTUPPARA CHERUKUND THODE	50	20	1000	900	100
	Total			**3,620**	**3,258**	**362**

3.6 GENERAL WORKS

NAME OF WORK	ESTIMATE COST	IWMP SHARE	WDF-BENIFICARY SHARE
KILIYANGAL ANGANVADI WELL CONSTRUCTION	92,144	82,930	9,214
CHOLAKKAL AGANVADI WELL CONSTRUCTION	92,143	82,929	9,214
REPAIR OF KODUMANDI WELL	25,000	22,500	2,500
REPAIR OF CHERUKUNDU WELL	25,000	22,500	2,500
Total		**210,859**	**23,429**

4. PRODUCTIVE SYSTEM AND MICRO ENTERPRISES (PSM)

Unscientific cultivation methods, , loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence , a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	4	30000/Ha		27,000	3,000	**108000**	**12000**	**120000**
2	Tuber crops	4	25000/Ha		22,500	2,500	**90000**	**10000**	**100000**
3	Banana cultivation	1000	15/seedling		13.5	1.5	**13500**	**1500**	**15000**
4	Fodder Crops	3	30000/Ha		27,000	3,000	**81000**	**9000**	**90000**
5	Vegetable garden	350	500/unit		450	50	**157500**	**17500**	**175000**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure								
	TOTAL AMOUNT						**450000**	**50000**	**500000**

5. LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people.

LSS	UNITS	Unit cost	IWMP SHARE/UNIT	Beneficiary /WDF/UNIT	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	35	**800**	**720**	**80**	**28000**	**25200**	**2800**
Dairy	4	**50,875**	**45787.5**	**5087.5**	**203500**	**183150**	**20350**
Tailoring units	5	**10,000**	**9000**	**1000**	**50000**	**45000**	**5000**
Goat Rearing	4	**17,800**	**16020**	**1780**	**71200**	**64080**	**7120**
Mushroom	4	**8,000**	**7200**	**800**	**32000**	**28800**	**3200**
Food processing	2	**25,000**	**22500**	**2500**	**50000**	**45000**	**5000**
Apiculture	**3**	**5000**	**4500**	**500**	**15000**	**13500**	**1500**
Rounded figure					**300**	**270**	**30**
Total					450000	**405000**	45000

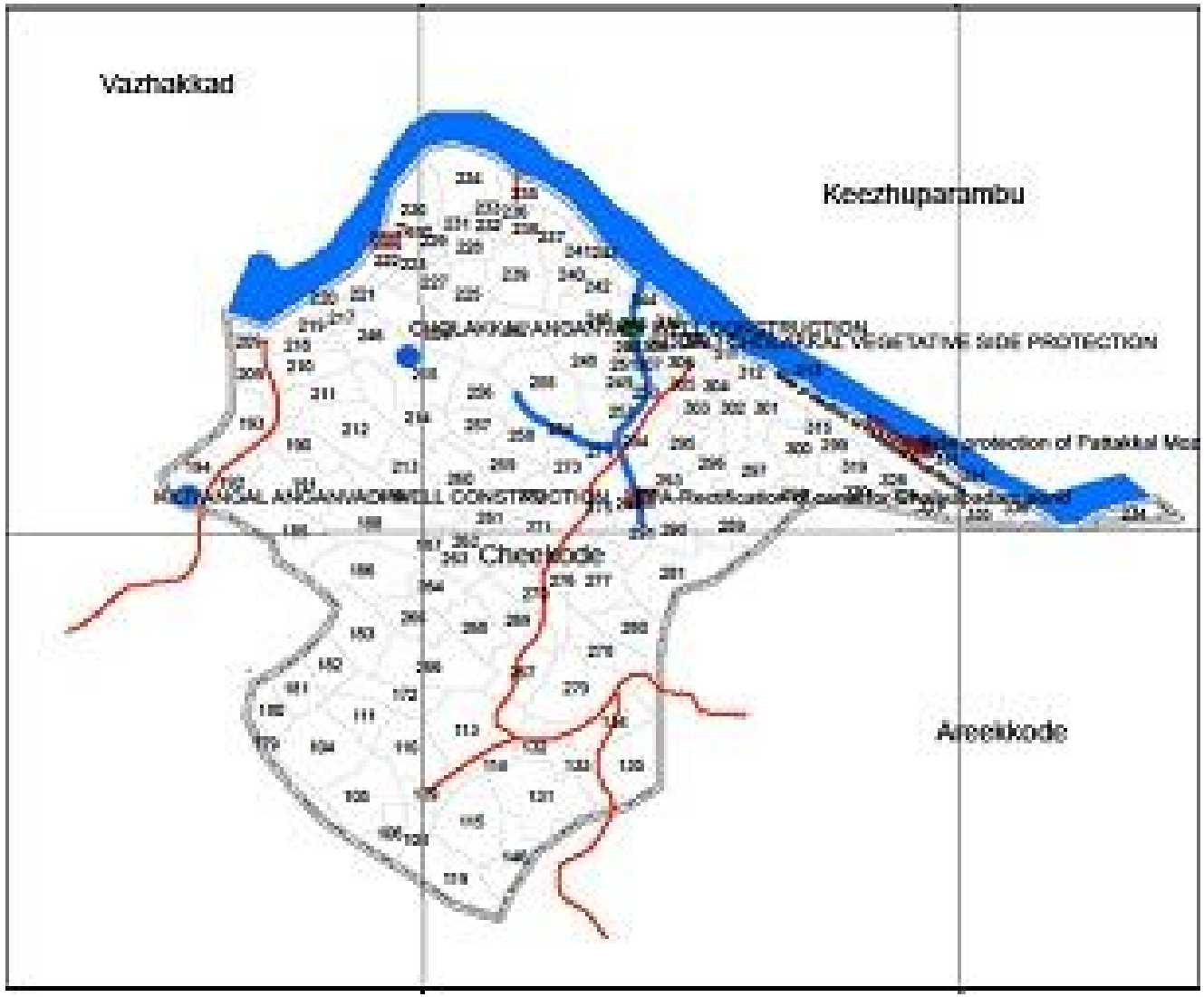
6. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	300	X	15000
	%		(4%)225000
FIRST YEAR	2		90000
SECOND YEAR	1.5		67500
THIRD YEAR	1		45000
FOURTH YEAR	0.5		22500

7. ANNUAL ACTION PLAN

Total treatable area – 300 Total amount - 300X 15000/ HA = 4500000

YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	90000	9000	4500	180000	90000	45000	720000	121500	90000	0	1350000
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	112500	11250	11250	0	90000	0	675000	81000	135000	0	1116000
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	112500	11250	11250	0	45000	0	675000	121500	135000	0	1111500
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	135000	13500	18000	0	0	0	450000	81000	90000	135000	922500
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	450000	45000	45000	180000	225000	45000	2520000	405000	450000	135000	4500000
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Vazhakkad
Keezhuparambu
Cherukode
Areekkode

CHALIYAPURAM-24C68a

1. LOCATION AND EXTENT

This watershed is located in Vazhakad Grama Panchayath, Kondotty block of the Malappuram district. It includes the wards of 7, 8,9,10,11,12,13 and first ward of the Cheekkode Grama Panchayath. The river valley of this watershed extends to a total area of 392 hectare bearing the code 24 C68 a. The watershed area is situated between 11^0 14'0" N and 11^o 16' 0"North latitude and between76^o58'0" and 76^o6'0" E in the east longitude. The boundaries of the watershed are north river Chaliyar, South Vettupara, East Chaliya Riverthodu and West Aramodi

1 PROBLEMS

1.1Agricultural sector:

1. Lack of proper irrigation facilities
2. Scarcity of labourers
3. Higher cost of chemical fertilizers
4. Scarcity of bio fertilizers
5. Higher investment in productivity due to following of traditional agricultural methods
6. Ignorance of scientific cultivation
7. Pest attack on coconut trees
8. Lack of inter crop cultivation
9. Agriculture not undertaken scientifically by conducting soil inspection
10.

1.2 Soil-water preservation sector:

1. Soil erosion from places of higher altitude
2. Ignorance of scientific soil and water preservation
3. Flow of water being checked by falling of sidewalls of streams and canals

2 ENTRY POINT ACTIVITIES

In Chaliyapuram watershed the EPA is proposed at Improvement works to Pancherikulam and side protection of Pancherikulam thazham Vadakkadath thodu. The purpose of the scheme is to give sufficient water for agricultural purpose. The major crops of the watershed are, coconut, banana, pepper, areca nut etc. At present people suffer from water scarcity for agriculture purpose. The work was planned in consultation with the watershed committee members and local residents.

2.1 IMPROVEMENT WORK AT PANCHEERIKKULAM

Watershed	Work	Amount
Chaliyapuram	Improvement works to Pancherikulam and side protection of Pancherikulam thazham Vadakkadath thodu	2352000

3. NATURAL RESOURCE MANAGEMENT (NRM)

Construction of water pits for rain water harvesting, terracing of land, bio-fencing and rain fed tanks, Protection of side walls of canals, construction of bunds, renovation of ponds and wells are the few activities that are proposed under NRM in the project area.

3.1 ACTIVITY WISE SUMMARY OF AREA TREATMENT-NATURAL RESOURCE MANAGEMENT

Sl No.	Proposed Treatments	Unit	Volume / Units	Rate (Rs. Per cum /unit)	Convergence	IWMP Share/UNIT	BENIFICARY AMOUNT/UNIT/wdf	IWMPSHARE	BENIFICARY SHARE/wdf
1	Water recharging	Nos	20	5000		4500	500	90000	10000
2	Rain water harvesting tank	Nos.(1 lakh ltr.)	1	35000		31500	3500	31500	3500
3	Paddy field bund	Cum.	750	61.83		56	6	41735	4637
4	Centripetal terracing	Nos	12668	0	MGNREGS	0	0	0	0
5	mulching	Nos.	6000	0	MGNREGS	0	0	0	0
6	Earthen Contour Bund	m	7500	61.83		56	6	417353	46373
7	Water Absorption Pits	Nos.	500	104		94	10	46800	5200
8	Horticulture Development	Nos.	1025	60		54	6	55350	6150
9	Stone pitched bund	m	4658	143.52		129	14	601665	66852
10	Agro-Forestry	Nos.	1501	40		36	4	54036	6004
11	Live Fencing	m	1500	20	MGNREGS	0	0	0	0
12	Biogas	Nos.	1	24000		21600	2400	21600	2400
13	Arecanut Basin	Nos.	4000		MGNREGS	0	0	0	0
14	Biogas in schools	Nos	1	45000		40500	4500	40500	4500
	Total							**1400538**	
	General works							**1892262**	
	Grant total							**3292800**	

3.2 IMPROVEMENT IN PONDS

SL. NO	NAME OF POND	LENGTH (1)	WIDTH (2)	DEPTH (3)	DEPTH OF SILT (4)	WORK	DESILTATION (m3) (5)	COST FOR SILT REMOVAL (8)= (7)*128.3m3	COST FOR BAILING OUT OF WATER (9)=(3*1525)	TOTAL COST (10)=(6)+(8)+(9)	IWMP SHARE (11)=(10)* 90%	WDF-BENIFICARY SHARE (12)=(10) * 10%
1	Punnattilkaithakal	3	3	4	0.5	DESILTATION	4.5	577.35	4575.00	5152	4637	515
2	Cherikuttisseri	8	5	3.5	0.5	DESILTATION	20	2566.00	4575.00	7141	6427	714
3	Kunathukulangarakulam	10	8	6	0.75	DESILTATION	60	7698.00	4575.00	12273	11046	1227
4	Cholakuzhikulam	10	8	7	0.75	DESILTATION	60	7698.00	4575.00	12273	11046	1227
	Total									**36,839**	**33,155**	**3,684**

3.3 DETAILS OF SIDE PROTECTION WORKS

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	CONVERGENCE	TOTAL AMOUNT	IWMP SHARE	WDF-BENIFICARY SHARE
1	KOLOTHUKADAVU THODU	30	2	1.2	1519	PRI/MI	45,570	41,013	4,557
2	KONNARI TO THEKKEMOOLA	40	2	3	1519	PRI/MI	60,760	54,684	6,076
3	VANPALLI THODU	50	2	1	1519	PRI/MI	75,950	68,355	7,595
4	POTTEMAL	40	1.5	0.75	1519	PRI/MI	60,760	54,684	6,076
5	KILIYAMOOCHINGAL TO CHALIYAR	45	2.3	1.5	1519	PRI/MI	68,355	61,520	6,836
6	MANNADI KATTAPALLI	50	1	1.5	1519	PRI/MI	75,950	68,355	7,595
7	MANNADI	50	2.3	1.5	1519	PRI/MI	75,950	68,355	7,595
8	EDAVANNAPARA NADACODE	43	2	1.5	1519	PRI/MI	65,317	58,785	6,532
9	NADACODE VALILLAPUZHA	50	1.75	0.5	1519	PRI/MI	75,950	68,355	7,595
10	PERUKALLAPADAM	45	2	1.5	1519	PRI/MI	68,355	61,520	6,836
	Total						**672,917**	**605,625**	**67,292**

3.4 DETAILS OF SIDE PROTECTION WORKS USING DEPARTMENTAL RUBBLES

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	RATE/ m	TOTAL AMOUNT(IWMP)	IWMP SHARE	WDF-BENIFICARY SHARE
1	KOLOTHUKADAVU THODU	15	0.5	1.5	639	9,585	8,627	958.5
2	KONNARI TO THEKKEMOOLA	20	0.5	1.5	639	12,780	11,502	1278
3	VANPALLI THODU	23	0.5	1.5	639	14,697	13,227	1469.7
4	POTTEMAL	20	0.5	1.5	639	12,780	11,502	1278
5	KILIYAMOOCHINGAL TO CHALIYAR	25	0.5	1.5	639	15,975	14,378	1597.5
6	MANNADI KATTAPALLI	65	0.5	1.5	639	41,535	37,382	4153.5
7	MANNADI	40	0.5	1.5	639	25,560	23,004	2556
8	EDAVANNAPARA NADACODE	27	0.5	1.5	639	17,253	15,528	1725.3
9	NADACODE VALILLAPUZHA	20	0.5	1.5	639	12,780	11,502	1278
10	PERUKALLAPADAM	20	0.5	1.5	639	12,780	11,502	1278
	Total					**175,725**	**158,153**	**17,573**

3.5STREAM DEEPENING

SL NO	NAME OF STREAM / LOCATION	LENGTH	WIDTH	HEIGHT	QTY m3	RATE/ m3	TOTAL AMOUNT(IWMP)	IWMP SHARE	WDF-BENIFICARY SHARE
1	KOLOTHUKADAVU THODU	145	2	0.5	145	111.6	16,182	14,564	1,618
2	KONNARI TO THEKKEMOOLA	125	2	0.5	125	111.6	13,950	12,555	1,395
3	VANPALLI THODU	108	2	0.5	108	111.6	12,053	10,848	1,205
4	POTTEMAL	111	1.5	0.5	83.25	111.6	9,291	8,362	929
5	KILIYAMOOCHINGAL TO CHALIYAR	387	2.3	0.5	445.05	111.6	49,668	44,701	4,967
6	MANNADI KATTAPALLI	481	1	0.5	240.5	111.6	26,840	24,156	2,684
7	MANNADI	400	2.3	0.5	460	111.6	51,336	46,202	5,134
8	EDAVANNAPARA NADACODE	970	2	0.5	970	111.6	108,252	97,427	10,825
9	NADACODE VALILLAPUZHA	981	1.75	0.5	858.375	111.6	95,795	86,215	9,579
10	PERUKALLAPADAM	299	2	0.5	299	111.6	33,368	30,032	3,337
	Total						**416,734**	**375,061**	**41,673.39**

3.6 VEGETATIVE SIDE PROTECTION

SL NO	NAME OF LOCATION	LENGTH	WIDTH	QTY (m2)	RATE/m	TOTAL AMOUNT(IWMP)	IWMP SHARE	WDF-BENIFICARY SHARE
1	KOLOTHUKADAVU THODU	40	0.75	30	20	800	720	80
2	KONNARI TO THEKKEMOOLA	100	0.75	75	20	2000	1800	200
3	VANPALLI THODU	100	0.75	75	20	2000	1800	200
4	POTTEMAL	335	0.75	251.25	20	6700	6030	670
5	MANNADI KATTAPALLI	450	0.75	337.5	20	9000	8100	900
6	MANNADI	230	0.75	172.5	20	4600	4140	460
7	EDAVANNAPARA NADACODE	400	0.75	300	20	8000	7200	800
8	NADACODE VALILLAPUZHA	400	0.75	300	20	8000	7200	800
9	PERUKALLAPADAM	100	0.75	75	20	2000	1800	200
	Total					**43,100**	**38,790**	**4,310**

3.7 GENERAL WORKS

SL NO	NAME OF WORK	ESTIMATE COST	CONVERGENCE	IWMP SHARE	WDF/BENIFICARY SHARE
1	CONSTRUCTION OF KONOTH VALILAPUZHA KULAM	757198	PRI/MI	681478	75,720

4. PRODUCTION SYTEM MANAGEMENT

Unscientific cultivation methods, loss of top soil due to soil erosion, lack of irrigation facilities lack of support system from the government sector are some of the problems faced by the agrarian sector of the watershed. Hence a planned intervention in the sector shall boost up the production from the sector in the project area.

Inculcation of awareness about new and scientific approach towards agriculture among farmers, cultivation in barren lands, manufacture of bio fertilizers and earthworm compost to encourage bio farming, encourage school vegetable garden, kitchen garden, drip irrigation system and precision farming are certain measures that can be undertaken.

Sl. No.	Activities	Units	Unit Cost	Convergence	IWMP SHARE/ unit	Beni contribution/unit-WDF	Total IWMP share (90%)	WDF	Total Amount
1	Spices cultivation	3	30000/Ha		27,000	3,000	**81000**	**9000**	**90000**
2	Tuber crops	2	25000/Ha		22,500	2,500	**45000**	**5000**	**50000**
3	Banana cultivation	8022	15/seedling		13.5	1.5	**108297**	**12033**	**120330**
4	Fodder Crops	6	30000/Ha		27,000	3,000	**162000**	**18000**	**180000**
5	Vegetable garden	426	500/unit		450	50	**191700**	**21300**	**213000**
6	Agro Nursery	2	400000/400Sqft	Agri-dpt	0	0	**0**	**0**	**0**
7	Milk Society	1		Diary unit	0	0	**0**	**0**	**0**
8	Inter Crops	1	25000/Ha	Agri-dpt	0	0	**0**	**0**	**0**
9	Azolla cultivation	50	1000/UNIT	Diary unit	0	0	**0**	**0**	**0**
10	Poly House	1	400000/400Sqft	Agri.Dep	0	0	**0**	**0**	**0**
	Rounded figure						**3**	**0**	**3**
	TOTAL AMOUNT						**588000**	**65333**	**653333**

5 LIVELYHOOD SUPPORT SYSTEM

Livelihood support forms an integral part of Watershed management since it wins the confidance of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people in the project area.

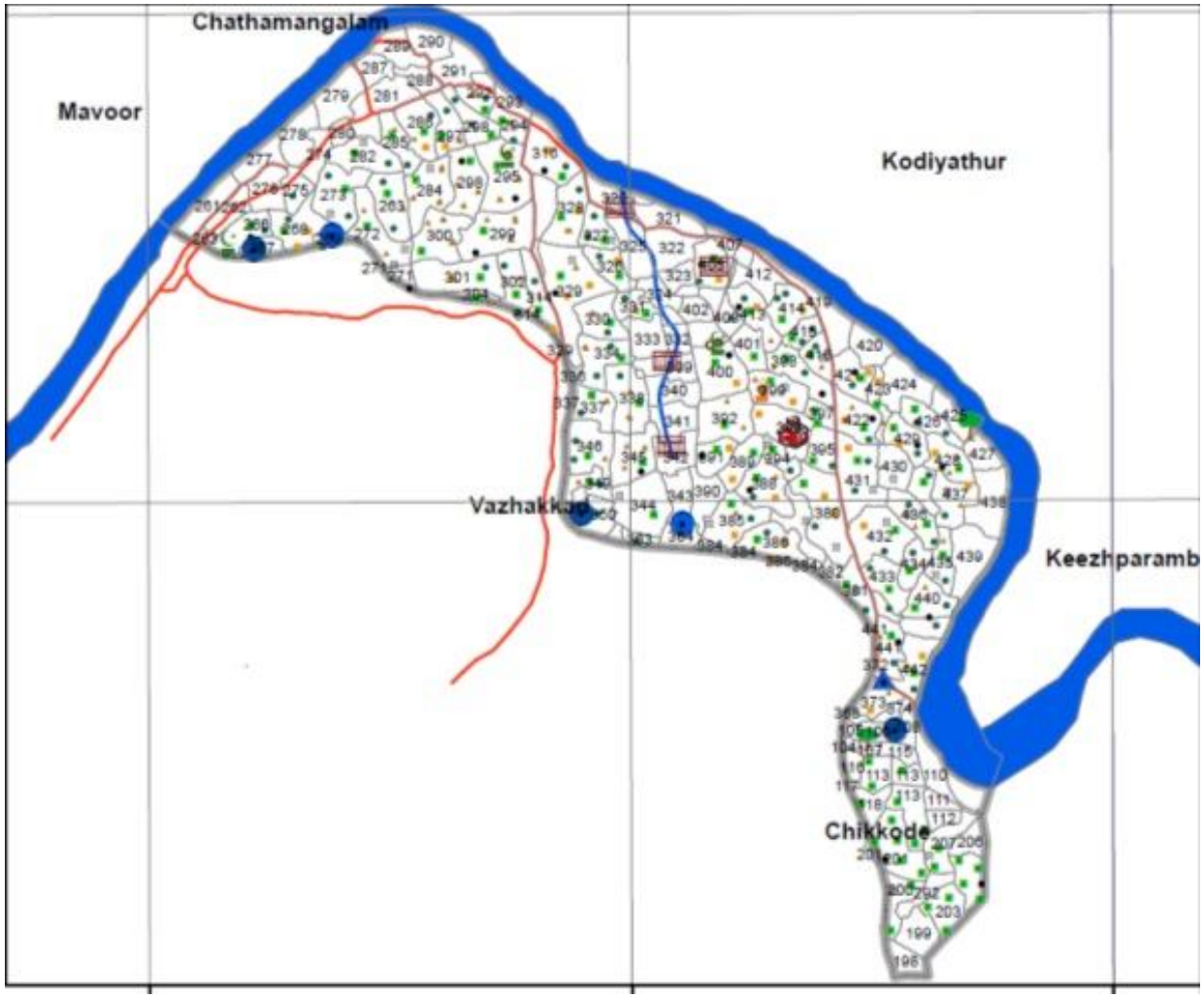
LSS	UNITS	Unit cost	IWMP SHARE/UNIT	WDF/UNIT-Beneficiary	TOTAL AMOUNT	IWMP SHARE	WDF
Poultry	80	800	720	80	64000	57600	6400
Dairy	6	50,875	45787.5	5087.5	305250	274725	30525
Tailoring units	4	10,000	9000	1000	40000	36000	4000
Goat Rearing	5	17,800	16020	1780	89000	80100	8900
Mushroom	5	8,000	7200	800	40000	36000	4000
Food processing	1	25,000	22500	2500	25000	22500	2500
Apiculture	5	5000	4500	500	25000	22500	2500
Rounded figure					-250	-225	-25
Total					588000	529200	58800

6. YEAR WISE CAPACITY BUILDING TRAINING PROGRAMME

FUNDING PATTERN OF CAPACITY BUILDING			
TOTAL AREA=	392	X	15000/Ha
	%		(4%) 294000
FIRST YEAR	2		117600
SECOND YEAR	1.5		88200
THIRD YEAR	1		58800
FOURTH YEAR	0.5		29400

7. ANNUAL ACTION PLAN-

Total treatable area – 392Total amount - 392X 15000/ HA = 5880000											
YEAR	ADMINISTRATION	MONITORING	EVALUATION	ENTRY POINT ACTIVITY	INSTITUTION & CAPACITY BUILDING	DPR PREPERATION	NATURAL RESOURCE MANAGEMENT ACTIVITIES	LIVELIHOOD ACTIVITIES	PRODUCTION SYSTEM 7 MICRO ENTERPRISES	CONSOLIDATION PHASE	TOTAL IWMP PROJECT
FIRST	117600	11760	5880	235200	117600	58800	940800	158760	117600	0	1764000
%	2.00	0.20	0.10	4.00	2.00	1.00	16.00	2.70	2.00		30.00
SECOND	147000	14700	14700	0	117600	0	882000	105840	176400	0	1458240
%	2.50	0.25	0.25		2.00		15.00	1.80	3.00		24.80
THIRD	147000	14700	14700	0	58800	0	882000	158760	176400	0	1452360
%	2.50	0.25	0.25		1.00		15.00	2.70	3.00	0.00	24.70
FOURTH	176400	17640	23520	0	0	0	588000	105840	117600	176400	1205400
%	3.00	0.30	0.40				10.00	1.80	2.00	3.00	20.50
TOTAL	588000	58800	58800	235200	294000	58800	3292800	529200	588000	176400	5880000
%	10.00	1.00	1.00	4.00	5.00	1.00	56.00	9.00	10.00	3.00	100.00


Chathamangalam
Mavoor
Kodiyathur
Vazhakkad
Keezhparamb
Chikkode

EXPECTED OUTCOME

The expected outcome of the project include the overall increase in the standard of living of the people in the watershed by mitigating the various constraints in the development of the natural resources which will increase the productivity of various activities. The end result will be increase in the employment and income of the farm households and as well as landless households.

EMPLOYMENT

Employment has always been a problem in the village. The principle occupations of the people are dry land agriculture, animal husbandry and casual labour work. However, rainfall being very limited and erratic, agriculture suffers, i.e. best they can take only a single crop, which keeps them partially engaged for about 4 months. Lack of fodder makes animal husbandry does not keep them engaged full time. Thus the people mainly depend upon casual labour either in the village itself or outside it.

MIGRATION

Low rainfall results in very little fodder availability in the locality. The relatively well off farmers bring fodder from nearest markets, collectively; but the resource poor cannot afford it. On account of agriculture and animal husbandry providing only part time employment for some part of the year, the people migrate for a better half of the year for wage labour. Employment opportunities in the local area as mentioned above will ensure lessening seasonal migration from the area.

GROUND WATERTABLE

Rain fall has been scanty but demand for ground water has been increasing all the time. The ground water table thus has depleted over the years. Presently it stands at 8-15 m. Proper harvesting structures and percolation tanks would go long way in increasing water table from 15m in the pre-project level to 5m in the post-project level period.

DRINKING WATER

The village has dug wells on which they depend for their drinking water. In fact the Government of Kerala provided so many drinking water schemes to the entire block & district. Even though after the post-project level, due to the renovated & new forming water

harvesting structures, the wells also increasing its water table. So, the post project level, people of this watershed, expect has no shortage of drinking water even during summer months.

AGRICULTURE

Agriculture primarily depends upon water. The village surface water is scanty due to low rainfall. All this can change with the integrated land and water management during the watershed project.

LIVESTOCK

The village has quite a good of livestock population. The interventions like provision of good quality cows and goats, the establishment of a fodder bank and other such related activities would raise up the dairy development in the watershed. It is expected that the post-project level period would see a substantial increase in livestock population and yield from them.

MANAGEMENT

As the production of animal is increases according to high quality animals demand for good quality fodder, concentrate, water, housing and care is needed more .If this is not fulfilled, then animal husbandry can have a loss in terms of less meat production as well as economic losses. After Completion of all activities, each Watershed Development Project is expected to achieve the following results by the end of the project period. All the activities that are planned for the treatment and development of the drainage lines, arable and no arable lands in the watershed area are completed with the active participation and contribution of the user groups and the community at large. The user groups have willingly taken over the operation and maintenance of the assets created and made suitable administrative and financial arrangements for their maintenance and further development. All the members of the Watershed Committee and staff such as Watershed Secretary and Volunteers have been give orientation and training to improve their knowledge and upgrade technical/management and community organizational skills to a level that is appropriate for the successful discharge of their responsibilities on withdrawal of the Watershed Development Team from the Project.

The village community would have been organized into several homogeneous self-help groups for savings and other income generation activities, which would have achieved sufficient commitment from their members and built up financial resources to be self-

sustaining. The increase in cropping intensity and agricultural productivity reflecting in overall increase agriculture production. Increase in income of farmers and landless labourers in the project area and Increase in groundwater table due to enhanced recharge by watershed interventions.

Expected outcomes due to implementation of IWMP in the Areacode/Wandoor Blo

Expected / Estimated Outcomes				
No.	**Item**	**Unit of Measurement**	**Pre-Project Status**	**Expected Post Project Status**
1	Depth to Water Table (Midland, Highland Av. Min Max)	Meter	3-5-8 7-10-11	Depth to WT to be reduced by 1m in Mid lands and 1-1.8 m in High lands
2	Ground water Recharge	MCM	1569	2168
3	Quality of Drinking water	Qualitative	Fluoride / Nitrates contamination, Saline & Brackish Water in some villages of the Project Area	Clean and Safe drinking water. (Through recharge of ground water through project interventions & through convergence)
4	Availability of Drinking Water-problem affected villages	10	Nil	Reduced concentration of dissolved salts, less incidence of turbulence better bacteriological quality etc. are the major expected post project benefits
5	Increase in Irrigation Potential	Lakh Ha	**.8**	1.2
6	Change in Cropping Pattern	Type	Paddy lands are left fallow and conversion paddy lands for other uses. Single cropped in a considerable part.	Paddy land conversion to be o curtailed Single tier systems to be converted into multi tier cropping systems, Mon cropping systems to Mixed cropping systems and Single cropped areas to be converted to Multiple cropped areas. Food crop production will be improved.
7	Productivity of Rice	Kg/Ha	890	1600
	Area under Single Crop	Ha	160	650
	Area under Double Crop	Ha	290	360
	Area under Multiple Crop	Ha	870	875
	Area under tree plantation	Ha	980	1580
	Area under Horticulture(Fruits)	Ha	120	202
	Area under Fuel & Fodder	Ha	50	96
	Milk Production	Lakh Tonnes	3.5	3.5

	SHGs	No.	361	380
	Livelihoods Activities	No.	29	35
	Per capita Income at current prices (2012-13)	Rs.	12520	13620

WITHDRAWAL PHASE

While preparing the detailed project report, the Gram Sabha/Gram Panchayat, under the technical guidance of WDT, shall evolve proper Exit Protocol for the watershed development project. The Exit Protocol shall specify a mechanism for maintenance of assets created, augmentation including levy and collection of user charges, utilization of the Watershed Development Fund etc. Mechanism for equitable distribution and sustainability of benefits accrued under the watershed development project should also be clearly spelt out in the Exit Protocol. While approving the Action Plan for the watershed, the ZP/DRDA shall ensure that the detailed mechanism for such Exit Protocol forms part of the Action Plan/Treatment Plan.

The last two years are the Consolidation and Withdrawal Phase of the Watershed development programme. This is the crucial phase of the project as the local institutions will be trained to manage the project independently after withdrawal of the Government Institutions from the project area.

The main purpose of this phase is to create innovative nature based, sustainable livelihoods and raise productivity levels of the augmented resources and local economic development plans developed during the watershed works phase.

The activities those will be under taken during this phase are:

1. Completion of various works under taken during work phase.
2. Consensus among the villagers to take up any new works out of any unspent amount.
3. Preparation of Project completion report with details about status of each asset.
4. Documentation of successful experiences as well as lessons learnt for future use.
5. Evolving mechanisms to improve the sustainability of various interventions made in the project area.
6. Formulation of mechanisms for allocation of user right over common property resources.
7. Formulation of mechanisms to collect user charges for common property resources.

8. Creation of awareness and building capacity of the community to repair, maintain and protection of common property resources.

9. Training the user groups for optimum utilization of the developed natural resources.

10. Up scaling of successful experiences related to farm production system and off farm livelihood activities undertaken through revolving fund under the project as well as credit and technical support from external institutions.

11. Evolving marketing arrangements of the farm produce as well as the off-farm and other micro enterprises.

12. Formation of Farmers' Federation for credit, input procurement, sale of local produce etc.

13. Forward and backward linkage of the SHGs and User groups for sustainable livelihoods.

14. Formulating mechanisms for empowering Watershed Committee and its smooth management in a long run.

15. Formulating mechanism for utilising the Watershed Development Fund

The subsequent activities are planned to be carried out during this stage.

1. Documentation: It is proposed to document the activities carried out during the watershed implementation period. It will help to maintain the records and identify and propagate the successful activities carried out under the project.

2. Up-Scaling of successful experiments: It is proposed to identify the best practices carried out during the project period and up-scaling the same as per feasibility and propagate the same among others members of the watershed area.

3. Evaluation: Evaluation is a very important activity to assess the success of implementation of the project. It is proposed to carry out evaluation at the following levels.

a. Social Audit: It is proposed to conduct the social audit of the programme at the watershed level where the Gram Sabha will evaluate the programme where the beneficiaries should explain their benefits and current status of the activity. The watershed committee should place the books of accounts of watershed programmes for approval.

b. Evaluation by external agency : An external agency with experience in implementation and monitoring and evaluation of watershed projects should be assigned for the evaluation of the watershed programme The proper and regular monitoring and evaluation of the project can trim down the improper implementation of activities so that the quality can be controlled at the right time. The chapter extends with the appropriate post-project techniques for project sustainability and research and documentation for maintaining the records, locate the loop

falls in implementing and follow up the project with a new and suitable adaptation for the area development.

PLANS FOR MONITORING

To control the activities at the stage of implementing, proper plans was formed for monitoring and Evaluation. Project monitoring is one of the important components in watershed development programmes. The broad objectives of a watershed project demand good monitoring framework. A monitoring framework is suggested within the capacity of watershed development teams and watershed committees. No great deal of training, human resources or instruments are expected to be employed. The monitoring should actually assist the project team to provide a guideline for improvement in the activities and output the project. Selection of an appropriate measure for the given area and ensuring the quality of project measures are to be given great attention at the time of monitoring.

THREE TIERS OF MONITORING:

The following three tiers of monitoring are planned: First Tier (Monitoring of activities): This will be carried out by PIA along with WDT and WC to monitor the implementation of all activities as per the action plan. The monitoring also aims at ensuring that the quality of work is as per the guidelines prescribed for each activity.

SECOND TIER (MONITORING OF OUTPUTS):

To check the outputs of the activities, PIA along with WDT monitors as per the logical frame work. The indicators are selected considering the broad objectives of the project. One can adopt or modify these as per requirement at the time of implementation. The output level indicators needs to be devised by the project team based on the outcome level indicators on. Outputs need to be monitored frequently, may be once in a quarter/ six months.

THIRD TIER (MONITORING OF OUTCOMES):

Project Implementation Agency along with the WC will monitor the overall outcomes of the objectives as per the logical frame. The outcomes level monitoring will start in the second year and continue on an annual basis. Most of the information can be available from the sets of output level indicators. Participatory methods will be used at the time of monitoring the activities. The methods of collecting sample data for the monitoring activities will be clearly documented in the monitoring report. The detail of the monitoring system is presented in the table as under.

VIGILANCE AND MONITORING COMMITTEES

1. For every work sanctioned under the Scheme, there should be a local vigilance and monitoring committee, composed of members of the locality or village where the work is

undertaken, to monitor the progress and quality of work while it is in progress. The Gram Sabha will elect the members of this committee and ensure that SC/STs and women are represented on it.

2. The Implementing Agency should apprise this committee of estimates regarding the work, time frame and quality parameters. The final report of the committee should be attached along with the Completion Certificate of the work, and should also be placed at the next meeting of the Gram Sabha in the Panchayat where work has been executed.

3. Local beneficiary committees may also be constituted for effective articulation of their entitlements and their access to them. The PIA members will be responsible for ensuring that local monitoring committees/beneficiary committees are constituted.

RESEARCH SUPPORT IN WATERSHED MANAGEMENT:

Watershed management requires the support of research. Watershed projects will be used as on-farm sites for research designed and implemented with significant involvement of farmers and extension workers to produce site-specific technological solutions. This leads to problems in adoption and up-scaling of research findings within specific watersheds. There is also the question of up-scaling technologies and approaches beyond a designated watershed. At the same time, researchers will be able to relate research activities to the real problems facing farmers or to capture the locally developed or modified technologies. Yet there is a need to give technologies appropriate technical and scientific definition and to disseminate them widely.

FARMER ORGANIZATION AND EMPOWERMENT:

The management of natural resources requires strong and effective farmer organizations. Such organizations empower farmers and create a good foundation for the transfer, adoption and use of information on new technologies. They also help in negotiating for inputs at favourable prices. Strong farmers' organizations can be a conduct for services that meet felt needs. These needs include information to improve production and marketing, credit, and demand driven approaches that ensure ownership and sustainability of interventions. Farmers' organization allows the use of participatory approaches that recognize local capacity and indigenous knowledge. It incorporates the aspirations and perceptions that influence decision-making, while giving farmers an important role in planning and implementation of watershed management activities.

Such participation is important for the success, continuity and sustainability of the resource management programmes. Often a successful watershed knits together many aspects of the people's lives apart from purely technical issues. Many conservation and basic group

production initiatives have widened into a social movement dealing with matters such as weddings, funerals, care for the elderly and the disadvantaged, and other issues in the community. The initial natural resources focus also widens into a set of integrated activities such as the improvement of houses, provision of water and electricity, acquisition of improved tools, seeds and livestock, all in the name of watershed management. Empowerment of farmers therefore allows farmers to demand services and to ensure the continued role of the state in supporting watershed development.

USE OF TRADITIONAL INSTITUTIONS AND INDIGENOUS KNOWLEDGE:

Experience has shown that to effectively reach the farmers and to create viable watershed management options, it is important to respect indigenous knowledge and combine it with the formal modern science and technology. Local traditional institutions should be part and parcel of the process. For instance, there is a lot of under-used indigenous knowledge about climate, soils, biodiversity and other production conditions that confront farmers. A lot of research findings are abstract to extension providers and farmers alike. Such findings need to be married with indigenous knowledge and disseminated in a language that farmers and members of traditional institutions can understand.

WITHDRAWAL MECHANISM:

1. At the end of the project, The Watershed Committee is to take the responsibility for post project management .For which the Memorandum of Agreement is to be formulated between the PIA and Watershed Committee basing on the following terms and conditions.
2. The list of assets created under EPA, NRM, Farm production system and Livelihood support system is to be prepared with joint signature of the Chairman, Secretary of the Watershed committee and PIA. The Watershed Committee will retain one copy of the list for future reference.
3. The amount lying unspent as on closing date will be transferred to the Watershed Development Fund.
4. Watershed Committee will be authorised to use only one Bank account i.e WDF account.
5. Yearly auditing of the accounts by the Chartered Accountant will be mandatory and to be adhered strictly.
6. The office bearer of the Watershed Committee shall involve all the community irrespective of caste, creed and religion.
7. The Gram Sabha shall have the right to decide the user charges to be collected from the beneficiaries which shall be deposited under the watershed development fund.

8. The cost of repair and maintenance of the assets created out of NRM component shall be borne out of Watershed development fund by using maximum 50% of the amount collected in a year.

9. The WDF account will primarily run as revolving fund.

10. No individual beneficiary should be granted any sort of grant or financial assistance in any form.

11. The SHGs and UGs shall have the eligibility to take loan from the WDF with marginal interest as decided by Gram Sabha.

12. The Watershed Committee is also at their liberty to start new profit making ventures by utilising WDF as security deposit and the profit earned should go to the WDF.

13. The remuneration for the Watershed secretary will be finalised in the Gram Sabha.

14. The Watershed Committee may collect financial assistance from any other sources to augment the WDF. All donations, interests, fines and fees shall be deposited in the WDF.

15. The WDF shall be jointly operated by the Chairman and Secretary of the watershed committee.

16. All the expenditure shall be authenticated by the Watershed committee.

17. Annual meeting of the Gram Sabha is mandatory. However it may meet at any time if required.

18. The Watershed Committee should meet in every quarter to review the income and expenditure.

19. Any change in the Watershed Committee or its office bearer shall be made once it is resolved in the Gram Sabha. The Gram Sabha should believe in rotational leadership.

20. All the group representatives, at least one from each group shall be ensured in the Watershed Committee.

21. The decision approved and resolved in the Gram Sabha will only be implemented by the Watershed Committee.

22. In case of any embezzlement of fund, the Administrative system shall proceed according to Rules and Laws.

23. In the event of Gram Sabha and watershed Committee become defunct, the assets created under the project and WDF will be transferred to the Panchayats.

PROJECT SUMMARY

The present IWMP-1 scheme is covered the area of Areacode, Areacode Blocks of District Malappuram, Kerala. It is sanctioned in year 2010-11. The Cluster area is situated between 11^0 11"6' N and 11^o 16' 8"North latitude and between75^o 58'0" and 76^o 6'0" in the east longitude.. The project consists of 10 micro watersheds namely ,Meleparambu Valiyathodu /24C10, Arimbrakuth / 24 C 12a, Areacode/ 24C 64a, Ugrapuram/ 24C65a, Vallayil-Chembrakattur / 24C64 a, Asharithodu/ 24C66b, Vilayil / 24C66q, Poomkudipadam /24C66r, Chaliyar/24 C67a and Chaliyapuram/ 24C68a with total geographical area of 5482 ha, out of which 5263ha is treatable with total outlay of Rs. 78945000 under Integrated Watershed Management Programme. The Project Implementing Agency (PIA) is Areacode Block Panchayath, Malappuram, Kerala. The selected micro-watershed falls in agro-climatic zone of KE-1 Northern Zone. The micro-watersheds of IWMP-1 have average elevation varying between 5 to 178 m above mean sea level. General topography of the watershed is moderate to gentle sloping terrain. Spatial distribution of different slope categories is prepared using Arc GIS software. Slope was divided into 3 classes' viz. 10-15, 15-35, and 1-3above 35, The dominant slope inclination category in the micro-watershed is10-15 per cent (42.25%) followed by 15-35 per cent (28.50%) and more than 35(29.5%). The watershed is dominated by cow and goat variety of livestock's. In the present scheme to achieve the sustainable development, all kinds of activities related to natural resource management, production systems and livelihood options for asset less people have been discussed in detail. The total cost of the project is Rs. 78945000. The deficit amount will be made through convergence of different development schemes sponsored by Central and State Govt. All the activities of natural resource conservation are marked on the map of proposed plan map of the watershed.
Major crops of the watershed are Coconut, Arecanut, Cashew nut, Rubber, Paddy, Banana, Vegetables, Ginger and Medicinal Plants. The dominant tress such as Jackfruit, Mango, Nutmeg and Teak etc.., Participatory Rural Appraisal (PRA) exercise was conducted to understand the problems and prospect in the area.

Integrated Watershed management implies rational utilization of natural resources for optimal and sustained production with minimum hazard to environment. It requires collection and analysis of information from multiple services to ensure sustainable economic and social progress of a watershed. A multi-tier ridge to valley sequence approach should be approached towards implementation of watershed development projects. Main objective of this is to

slowing down the velocity of runoff, checking soil erosion, improving local soil moisture profile and to make soil fertile by different types of treatments.

The project also plans for creation of both wage employment and self employment opportunities. Wage employment would be created by engaging people in watershed physical works like construction of bunds, ponds, plantation, etc. Self employment would be created by providing the people with cash support in the form of direct livelihood activities like agriculture, animal husbandry and enterprise development.

- **Natural Resource Management works:**

Activities such as Centripetal bunds, Paddy field bunds, Centripetal terracing, mulching, earthen contour bunds, water absorption pits, stone pitched bunds, live fencing etc. are proposed in this project under Natural Resource Management works.

- **Production System Management:**

Activities which can add to the restoration of nature resources as well as having good market for the products are proposed in production system management. Most of them are having local demands, while some of them like school vegetable garden result in creation of public assets. The activities include bee keeping, mushroom farming, fodder grass cultivation, azolla cultivation, banana cultivation, spices cultivation, agro nursery etc.

- **Livelihood support System:**

Livelihood support forms an integral part of Watershed management since it wins the confidence of the stakeholders in the area and ensures a healthy management of the local environment. The activities are selected on the basis that it shall add to the environmental enhancement of the project area as well as supplement the income of the people in the project area.

Project implementation mainly depends upon the watershed committees and other community organizations. Watershed committee and various User Groups have been formulated for post operation and maintenance of assets created during project period. Major emphasis will be on equity and sustainable benefit of the project even after implementation stage. A proper link-up will be built during project period with various institutes and capacity building organization. They will act as a key player during post implementation for scaling up the successful experience during project.

CONCLUSION

Integrated Watershed management implies rational utilization of natural resources for optimal and sustained production with minimum hazard to environment. It requires collection and analysis of information from multiple services to ensure sustainable economic and social progress of a watershed.

In short implementation of IWMP in Areacode Block shall help in eco-rejuvenation of the area and sustainable development with optimum resource management. It shall increase the ground water recharge and increase the water availability. It shall increase the soil cover and reduce soil erosion. It shall increase the soil fertility and increase the agriculture production from the area. Availability of fresh vegetables shall improve the health status of the local residents as well as reduce the dependence on neighbouring states for the purpose. Availability of preservative free fresh milk shall be a boon to quality conscious consumers at the same time it shall fetch good returns to the farmers as well. Biogas plants shall ensure proper disposal of waste as well as supply energy for the household consumption. Bee Keeping and Mushroom cultivation are two new livelihood options proposed in the report. Thus implementation of intensive watershed development shall bring about positive changes in all spheres of life and thus pave way for the sustainable development in the command area.